

# JOURNAL *of* FARM ECONOMICS

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# JOURNAL OF FARM ECONOMICS

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## GOVERNMENT EGG PROGRAMS DURING WARTIME, A REVIEW AND APPRAISAL

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THE experience with the egg industry during the war illustrates many of the problems and difficulties involved in the planning and implementing of national programs for agricultural production and marketing. This was particularly evident during wartime when changing conditions often resulted in confusion as to the direction or objectives of the programs.

The egg enterprise, by its very nature, can be expanded or contracted quickly. Eggs are produced on about five-sixths of the nation's 6 million farms, and on an undetermined number of town and city lots. Rapid expansion is possible through use of commercially hatched baby chicks. Furthermore, relatively few additional facilities and little additional labor are needed in raising larger numbers of laying stock, although the degree of specialization is much higher at present than a decade ago. The fact that young pullets begin producing at an average age of about 6 months is a third factor enabling rapid changes in egg production.

Expansion or contraction of the industry can be influenced primarily at the time when producers decide upon the number of chicks they will raise for flock replacement. The number of chicks raised in any one year determines to a large extent the number of hens and pullets on farms the following January 1. Also it determines the size of the laying flocks for the greater part of the next year.<sup>1</sup> A minor factor is the rate of culling during the spring and

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\* The author is indebted to Mr. Robert M. Walsh and Mr. Herbert C. Kriesel of the Bureau for helpful suggestions and criticisms. However, the opinions expressed are solely those of the author.

<sup>1</sup> *The Poultry and Egg Situation*, February-March 1946, p. 7.

summer, which varies relatively little from year to year. Hence, the economic stimuli which affect the production of eggs in any particular year are mainly those which exist during the period just preceding and at the time when chicks are hatched. Therefore, to affect materially the production of eggs in any given year, plans and programs should be prepared at least 10 months prior to that year.

### *Brief History*

Under the impetus of favorable returns to egg producers, and with large reserve supplies of feed grains available, egg production expanded rapidly from 1940 to 1944. Farm production in 1940 totaled 3.3 billion dozen eggs. In 1944 farm output reached 4.8 billion dozen, 46 percent above 1940. A recession of 5 percent in production occurred during 1945. Egg production in 1946 is almost as large as in 1945.

From 1941 through 1943, demand increased more rapidly than supply, and prices of eggs increased sharply. Prices received by farmers in 1943 averaged 39 cents per dozen, compared with 19 cents per dozen in 1940.

In 1944, supply began to exceed demand at support levels. Early in 1944, Government purchases for price support were undertaken. The average price received by farmers for eggs in 1944 was 33.8 cents per dozen. In late 1944 and during 1945, with a record level of consumer purchasing power and a wide gap existing between the demand for and the supply of red meats, egg prices strengthened, and in 1945 they again averaged 39 cents per dozen.

Civilian consumption, which averaged 313 eggs per person from 1940 through 1942, increased to 345 eggs in 1943, to 352 eggs in 1944, and to about 390 eggs in 1945—a gain of about 30 percent over the 1935–39 average of 298.

The following percentages of the eggs produced on farms were procured for lend-lease purposes: 5 percent in 1941, 15 percent in 1942, 13 percent in 1943, 17 percent in 1944, and 2 percent in 1945. Nearly all of these eggs were dehydrated. The United Kingdom was the principal foreign market for dried eggs, although the USSR also took substantial quantities in some years.

### *Production Goals*

Agricultural goals accompanied by implementing programs, such as price supports and incentive payments, were basic mechanisms

used during the war to bring about production adjustments. On a national scale they were designed to express an over-all production objective consistent with available resources.<sup>2</sup> Among commodities, however, the objectives varied. Because of the many market channels for eggs, it would have been extremely difficult to undertake consumer rationing, and the goals program set forth a desirable volume of egg production to meet all prospective requirements.<sup>3</sup>

Changes in egg production early in the war approximated more closely the goals than in later years. An inadequacy resulted from the fact that the goal determinations for the next year's egg production were made in the preceding fall or winter—at a time when *that year's production was to a large extent already determined*. Goals for a given year, to have full-scale effect, should be announced and implemented early in the spring of the preceding year.

A second difficulty with the goals program was the inability to gauge the demand with exactness. This was particularly true in later war years when foreign requirements changed rapidly with the changing war situation; and when developments in other commodities, particularly meats, affected the demand for eggs. But this was of lesser significance in view of the fact that, even had demand been gauged, the techniques for equalizing the supply with demand were inadequate in timing and in the way they were calculated. A notable exception was in 1942. The price support announcements and the dried egg pricing arrangements for 1942 did result in a desirable production pattern and distribution of supplies for that year.

Tentative national goals for 1942 were first announced September 8, 1941, and called for a total egg production, farm and non-farm, of 4 billion dozen, 6 percent above the 1941 output. Following this announcement and the price-support announcements of April 3 and September 8 of 1941, the net addition of layers to flocks was larger than usual. As a result the number of hens and pullets on farms on January 1, 1942 was 12 percent above January 1, 1941. This percentage increase was higher than might have been expected from the increase in number of chicks raised during the spring. Prices increased sharply to support levels in April and May 1941. In the revision of all agricultural goals following Pearl Harbor, the goal announcement of January 16, 1942 requested egg producers

<sup>2</sup> *Agricultural Situation*, July 1945, p. 15.

<sup>3</sup> *Food Program for 1944*, p. 5. Also 1944 and 1945 Goals Handbooks, U. S. Dept. of Agric.

to increase their output to 4.2 billion dozen eggs, 12 percent above the previous year. This revised goal was exceeded by 2 percent.

The 1942 goals announcements made September 8, 1941 and January 16, 1942 did not specifically state what the requirements were for the coming year for any of the commodities, including eggs. However a later announcement<sup>4</sup> indicated that requirements for dried egg for export were about 200 million pounds. In general this goal was met. Purchases of dried eggs totaled about 210 million pounds—and civilian demands were satisfied at prices moderately above support levels.

The 1943 goals were announced November 30, 1942, a time when the number of layers on farms for 1943 was pretty well determined. The goals requested a total egg production of 4,780 million dozen of eggs, 8 percent above the 1942 production. As the number of layers on farms on January 1, 1943 was 13 percent above the previous January 1, it was apparent from the beginning of the year that no difficulties would be involved in achieving the goals. Egg production in 1943 did in fact exceed the goals by about 4 percent.

The 1943 goals announcement did not indicate the exact basis for arriving at the production goal. However, it was later indicated that total dried-egg requirements, including military, were 425 million pounds.<sup>5</sup> This is another illustration of the inability to plan on a sound basis in wartime. While it was recognized that these requirements were very large, the psychology of the times required a policy of all-out production in both agriculture and industry, without too close appraisal of what might be the actual needs. Stated foreign requirements of about 400 million pounds of dried eggs turned out to be too high. Consequently, on October 2, 1943, after purchasing about 275 million pounds of dried eggs, the Department of Agriculture requested contract cancellations, as Government stocks appeared sufficient to meet lend-lease needs.<sup>6</sup>

Farm egg production goals for 1944 were announced November 11, 1943 after a series of State meetings. The production requested for 1944 was 4,597 million dozen, 2 percent above the previous year. The average number of layers in November 1943 was 7 percent above that in November 1942. In addition, pullets not of lay-

<sup>4</sup> Press Release, U.S.D.A. 1582-42, January 22, 1942.

<sup>5</sup> Speech given by Dr. T. G. Stitts, Chief, Dairy and Poultry Branch, Food Distribution Administration, before Missouri Egg and Poultry Shippers Association, February 22, 1943.

<sup>6</sup> Press Release, U.S.D.A. 718-44, October 2, 1943.



ing age on November 1 were substantially more numerous than in the previous year. Farm egg production in 1944 exceeded the goal by about 4 percent. And with record meat production, egg prices were depressed in 1944.

The 1944 goals for eggs were predicated on estimates of foreign requirements, amounting to 185 million pounds of dried eggs, and of civilian per capita consumption about the same as in 1943 (345-350 eggs per person). In that year Government procurement of dried eggs was over 225 million pounds, of which 40 million pounds were for price support.

Tentative national goals for 1945 were announced November 15, 1944, calling for a 16 percent reduction in egg production from the indicated 1944 total. The goals also suggested that the number of hens and pullets on hand January 1, 1945 be reduced to 420 million birds. At the time of this request, it was apparent that hen and pullet numbers on January 1, 1945 would be about 470 million. Since attainment of the January 1 goal was a physical impossibility in the short time available, a supplementary goal for March 1 hen and pullet numbers of 354 million birds was announced, a decrease of 20 percent from March 1, 1944. In order to attain this desired decrease, an increase in the culling rate of 57 percent above normal would have been necessary from January 1 to March 1. It was decided, however, that a program to implement the request for a substantial reduction could not be put into effect because of the widespread and amorphous nature of the poultry industry.

As the German army did not collapse in the fall of 1944, as many had expected, a revised goal was announced January 15, 1945, requesting a reduction of only 9 percent from 1944 levels. This was in line with expected production at that time; hen and pullet numbers on farms at the beginning of the year were 10 percent below the previous year. However, a 5 percent increase in the rate of lay resulted in egg production only 5 percent below 1944.

The 1945 egg goals announcement was accompanied by uncertainty as to what the demand for that year might be. The goals announcement issued November 15, 1944, based on the assumption of an early end of the war, stated that the 15 percent lower production than in 1944 would provide for a civilian consumption rate about the same as in 1944, a military requirement of 485 million dozen, but no requirements for dehydrating purposes. It was apparent that farmers would not reduce their laying flocks in line

with the requested reduction in egg production. Consequently, about one month following this announcement, possible outlets for dried eggs, if price support purchases became necessary, were indicated at 365 million pounds, of which 265 million pounds would be met from the 1945 production.<sup>7</sup> Fortunately the farm goal was exceeded. Because of a shortage of red meats that developed and the high level of consumer income, civilian consumption totaled about 390 eggs per person, 50 eggs above the level indicated as likely in the goals statements.

Tentative national goals for 1946 were announced November 15, 1945. These called for a reduction of 15 percent in egg production and a 13 percent smaller number of hens and pullets on farms January 1, 1946 than on the preceding January 1. At the time of this announcement, all indications pointed to about the same number of hens and pullets on farms on January 1, 1946, as on January 1, 1945. Final 1946 goals were announced February 21, 1946. The levels suggested then were the same as carried in the November 15 announcement.

The 1946 goals for eggs were based on a per capita civilian consumption of 342 eggs and no requirements for drying purposes for foreign countries. Official forecasts made during the fall of 1945 indicated a substantial reduction in national income, and that unemployment may be pronounced due to reconversion difficulties. This, of course, would have resulted in a weakening in the civilian demand for eggs from 1945 levels.

The need for relief shipments of substantial quantities of food was not foreseen at the end of 1945. No foreign country filed a requirement for dried eggs prior to November 15, 1945.

At present it appears that civilian consumption in 1946 will be about 370 eggs per person, largely because of a shorter civilian supply of meats and higher incomes than had been expected. As the world food supply situation cleared, foreign governments began requesting the Department to purchase dried eggs for their account. During the year the USDA received definite orders for 97.5 million pounds of dried eggs, almost all of which were to be shipped to the United Kingdom.

Goals for the number of chickens raised were announced beginning in 1943. But in 1943 and 1944 they were primarily concerned

<sup>7</sup> See report of speech made by Lt. Col. Ralph W. Olmstead, December 12, 1944, in the *American Egg and Poultry Review* of December 1944, p. 737.

with obtaining chicken meat production and not with the idea of achieving a desirable laying flock. However, the following year, the 1945 and 1946 production goal announcements recognized the relationship between chickens raised in any year with the following year's egg production pattern.

Egg production goals were exceeded every year during the war. Total demands as indicated in the goals were not accurate estimates after 1942. The estimates of foreign requirements in 1943 and 1945 turned out too high, and too low in 1946. Domestic demand in 1945 and 1946 was larger than anticipated. Despite these facts, however, the demand and supply for eggs and egg products over the 6-year period were fairly well in balance, at prices varying between supports and ceilings. Owing to the lack of sufficient quantities of milk products and meats to meet lend-lease and domestic demands in full, practically all available eggs were taken by the domestic market and foreign claimants, particularly the British and the Russians.<sup>8</sup> No serious price-depressing surplus of eggs developed for any length of time except the spring of 1944, nor were scarcities of eggs so great as to exert strong upward pressure against price ceilings.

#### *Price Support Programs<sup>9</sup>*

Price supports for eggs, particularly those announced for 1942 and 1943, were meant to implement the goals announcements, and to bring about expansion of production to achieve desired results.<sup>10</sup> The support announcements for 1944, 1945 and 1946 were primarily designed to meet legislative provisions with regard to minimum prices.

Under ideal conditions, price supports to be effective should be timed well and should have meaning to producers. For eggs, neither of these conditions was fully met. But this was not damaging since egg prices, except during a large part of 1944, were above support levels, largely because of the wartime expansion in demand.

Except in 1941, price supports were announced in late fall or winter each year, after the year's output was largely determined.

<sup>8</sup> It is reported that one of the reasons Lt. Col. Olmstead, Deputy Director of Supply, War Food Administration, made his trip to Russia in 1944 was to "sell" additional quantities of dried eggs.

<sup>9</sup> The historical portion of this presentation is based largely on material prepared by the author appearing in *The Poultry and Egg Situation*, April-May-June, 1946, pp. 21-24.

<sup>10</sup> The mere fact that the 1942 and 1943 price support announcements accompanied the goals announcements indicates this.

In addition, the support announcements until 1944, when price support operations became necessary, were general and vague. Support was offered primarily through the announcement of prices to be paid dealers for shell eggs in carlot quantities. This was done to avoid as much as possible the direct purchase of lower quality (current receipts) eggs for which the Department had limited outlets. Except in the South, there was no requirement until 1944 as to prices dealers were to pay to farmers. Egg purchases in carlot quantities from dealers and distributors were oftentimes too far removed from the farm to indicate the support level.

The first announcement of price supports was on April 3, 1941. That announcement stated that egg prices were to be supported at 22 cents per dozen, Chicago basis, through June 30, 1943, with normal differentials for season, grade, weight, and location. As egg prices in early 1941 were low in relation to this commitment and because prices advanced sharply during the hatching season, an expansion larger than anticipated occurred in laying flocks, in part due to large Government procurement to carry out the commitment. The number of chickens raised in 1941 was 16 percent above the previous year, compared with February 1 reported intentions of farmers to purchase only 9 percent more chicks. Thus, egg production in 1941 and to a greater extent in 1942, when most of the chickens raised in 1941 reached laying age, was much larger than might have been expected without the price-support activities. After early fall of 1941, the growing civilian demand for eggs and Government, military, and export procurement programs were predominant factors affecting egg production.

On August 29, 1941, eggs were officially proclaimed a "Steagall" commodity. It was stated that egg prices would be supported at not less than 85 percent of parity until January 1, 1943. Eggs were also included in the revised goals announcement of January 16, 1942 which reaffirmed that prices were to be supported at not less than 85 percent of parity; this announcement extended the period of price support to June 30, 1943. To carry out this commitment, the USDA announced on January 22, 1942 the general methods that would be used in meeting its price support obligations, and on February 10, 1942 the specific prices to be paid by the Department for different grades of eggs on the Chicago and New York Mercantile Exchanges during the late winter and spring of 1942.

In the general price support announcement for 1943, made No-



vember 27, 1942, the support price for eggs was increased to 90 percent of parity, as required by the Steagall Amendment as amended. It was stated that in no event were prices received by farmers for eggs to average less than 30 cents per dozen in the spring and early summer of 1943, and that the annual average price was to be not less than 34 cents per dozen. These support prices were substantially above the required minimum of 90 percent of parity, but were announced for the purpose of stimulating production. Actual producer prices averaged substantially above the announced levels.

The price-support statement for 1944, issued January 26, 1944, was substantially the same as that for 1943. But with the large production of eggs which occurred in 1944 it was found necessary on February 29 and March 30 to issue specific schedules of prices to carry out the price commitment. Specific prices applied to 64 markets, with Government purchases being carried out by appointed market agents. These agents were required to pay producers 26 cents per dozen for current-receipt eggs. On May 9, 1944 the minimum price was increased to 27 cents per dozen. However, the increased civilian consumption during the summer and fall months and the seasonal decline in production brought a strengthening in prices and made it unnecessary to purchase large quantities of shell eggs during the remainder of 1944. Egg driers were required to pay a minimum of 30 cents per dozen, f.o.b. plant, cases returned, for eggs used to meet dried-egg commitments made to the Department of Agriculture during the early part of the program. This was later changed to a minimum of 27 cents per dozen to producer.

A minimum producers' price of 27 cents per dozen for current-receipt eggs for 1945 was announced December 12, 1944. In areas where marketing facilities for purchasing current-receipt eggs from producers were not available, a minimum price of 24 cents was provided. Driers were required to certify that they had not paid less than support prices, and in turn the Administration paid driers a conversion allowance on a cost-plus-profit basis.

The 1946 egg price support program announced December 27, 1945 provided that prices received by farmers during the flush-production season would average at least 27 cents per dozen in the Midwest and 29 cents nationally, to reflect a minimum of 90 percent of parity. Purchases of dried-whole and frozen-whole eggs were made.

Specific mention should be made of the Southern 10-case purchase program which probably fulfilled most of the criteria of the "good" support program. That is, it reached the producer level, was definite in its commitments, and support prices were in effect nearly all the time. The program was inaugurated in the spring of 1942 chiefly to provide price supports for the expanded production of eggs in an area where local facilities were inadequate to handle all market supplies in the flush-production season. It was in effect from the spring of 1942 through 1945. Authorized dealers in 10 Southern States, later 12 States, bought eggs from vendors in small lots. Specific prices to producers for various grades and weights were announced from time to time, together with an additional margin to dealers for assembly and handling costs.

#### *The Dried-Egg Program*

The dried-egg program was an important and integral part of the developments of the egg industry during wartime. Dried-egg production for lend-lease purposes in 1942 through 1944 took about 15 percent of the farm-egg production. Because of this, procurement policy and pricing arrangements affected the supplies available for civilians and the returns to farmers; and hence the production pattern.

The expansion of the egg-drying industry was one of the outstanding developments of the poultry industry during the war. Near the end of 1941, when it became apparent because of the increased submarine warfare that shipments of shell eggs would not be practicable, there was a shift in foreign demand from shell eggs to dried eggs. From a productive capacity of 40 to 50 million pounds on a year-around basis, the capacity increased to 200 million pounds in early 1942, and by early 1943 the capacity was rated at 350 to 400 million pounds. This great expansion was attributable to the exceptionally favorable returns that egg driers received in late 1941, and to the fact that the egg-drying program was inaugurated early in the war.

Each year from 1941 through 1944, because of the limited processing facilities and the high seasonality of egg production, it was necessary for the Department to purchase dried eggs for forward delivery. The USDA announced paying prices for future delivery so that driers could purchase shell and frozen eggs during the flush-production season for backlog purposes, spreading the processing of eggs through the season of low egg production.

Purchase of dried eggs for forward delivery was begun in August 1941. Prices paid for delivery in the fall and winter months averaged 30 to 35 cents per pound higher than the price paid for delivery during the spring and summer months.<sup>11</sup> These prices were extremely favorable to egg driers and caused a diversion of plant facilities from milk drying to egg drying. By early 1942, of 11 egg-drying plants in operation in Wisconsin, all were formerly milk driers. In other midwestern states similar situations existed, although not to so great an extent. The egg-drying industry by late 1941 was expanded greatly, but, on the other hand, production of dried milk, although at a record rate, was not sufficient to satisfy all foreign demands. From the over-all point of view, it was recognized that the production of dried milk was more important to the war effort than production of dried eggs.<sup>12</sup> Yet there was little coordination or direction as to the way dehydrating capacity was utilized.

In 1942 the pricing program for purchases of dried eggs was flexible. Although purchases during the spring months were made for forward delivery through December, prices to be paid were announced only from week to week.<sup>13</sup> This led dehydrators to offer as many dried eggs as possible for immediate delivery, evening out the operations of their plants with full utilization of available capacity and as little use of storage space as possible. It also had desirable effects in obtaining supplies as needed.

The price program for 1943 procurement indicated the difficulties involved in a price program where little or no flexibility is available. In order to obtain maximum production of dried eggs in every month of the year to fill large export requirements, the Department announced on February 18, 1943 the specific prices which were to be paid for dried eggs for delivery through January 1944.<sup>14</sup> However, to encourage egg driers to "backlog" as many eggs as possible for drying in the fall and winter months, prices as announced were much more favorable for delivery during the later months of the year, after allowing for storage costs, than for delivery during the spring months.<sup>15</sup> In addition, ceiling prices as set forth in MPR-333 issued in late February 1943 favored a large movement of shell eggs

<sup>11</sup> *The Poultry and Egg Situation*, April-May-June 1946, p. 20. The spread in 1942 and 1943 for similar periods was 18 to 23 cents per pound respectively.

<sup>12</sup> Press Release, U.S.D.A. 1119-42, November 21, 1941.

<sup>13</sup> Press Release, U.S.D.A. 2208-42.

<sup>14</sup> Press Release, U.S.D.A. 1637-43.

<sup>15</sup> *American Egg and Poultry Review*, April 1943, p. 238.

into storage for use in later months. Both of these conditions resulted in rapid increases in producer prices. Egg driers were handicapped in offering powder for current delivery, but were able to store shell and frozen eggs as a backlog for later processing. Consequently driers made their offerings for delivery in later months.

This in part necessitated the operation of War Food Orders relating to the distribution of eggs. It also resulted in poor use of storage facilities at a time when storage space was at a premium. The Department purchased for delivery in the period October 1943-January 1944, 90 million pounds of dried eggs, compared with 60 million pounds purchased for delivery from March through June, the 4 months of flush production. Some attempts were made in late May to limit the quantities driers could offer for later delivery.

The 1944 program presented, although to a lesser extent, some of the same problems encountered in 1943. Prices were announced in March, for delivery from April through August.<sup>16</sup> However, with a large surplus of eggs developing in 1944, accompanied by relatively low market prices for shell eggs, the Department later rescinded its commitments. Contracts made for delivery after May 1 on the basis of specific prices for dried eggs were renegotiated on a cost-plus-profit basis.

Dried eggs purchased in 1945, totaling about 35 million pounds, were primarily for price support, and were on cost-plus basis. Prices received by farmers during the spring, when purchases were made, were above 105 percent of parity, far above the support commitment of 90 percent of parity. This added further to a tight supply situation which prevailed during that year.

#### *Distribution Controls*

Dislocation of food supplies develops when demand at fixed ceiling prices exceeds supply, even though price ceilings may be perfectly devised in most important respects. In such instances supplies tend to be used near the source of production or to circumvent the normal channels of trade. These tendencies are especially pronounced with eggs because little processing is needed before the commodity is sold to ultimate consumers and the multiplicity of producers makes it difficult to control distribution. During most of the war, eggs, never in very scarce supply, were satisfactorily channelized by means of price differentials.

<sup>16</sup> Letter of Dr. Stitts to egg driers, dated March 3, 1943.



However, a situation arose in the spring of 1943 when some control over distribution of supplies of eggs was believed necessary. At that time the Department found itself unable to purchase sufficient quantities of dried eggs to meet current lend-lease commitments. Two factors were responsible. First, with relatively high price ceilings on shell eggs for the fall period, in comparison with the prices prevailing in the spring, there was a strong demand for shell eggs for storing during the flush production; and, second, prices paid for future delivery for dried whole eggs were such as to encourage offerings for delivery in the fall and winter months of 1943, instead of during flush season.

To divert sufficient quantities of shell eggs to egg driers for immediate drying purposes, War Food Order 40 was issued March 22, 1943, effective March 26. A supplemental order, WFO-41, limited the production of frozen and dried eggs for commercial purposes to the same quantities produced in 1942. WFO-40 provided that all shell eggs placed in cold storage were to be set aside on May 15 for sale to Government agencies, unless they were specifically stored for dehydrating at a later date. This order was later amended (May 15), when it became evident that compliance, particularly on eggs stored prior to the effective date, would be difficult to achieve. Shell eggs stored prior to March 26 were exempt from the provisions of the order. The amendments also carried provisions that permitted maintenance of working inventories.

WFO-40 was terminated October 6, 1943. An indication of the ineffectiveness of the order is given by the fact that the peak of the cold storage holdings on July 1, 1943 totaled about 9 million cases, of which somewhat less than 3 million cases were stored prior to March 26 and only 1 million cases came under the working inventory exemption.<sup>17</sup> Although part of the remaining 5 million cases probably were set aside for later drying and for army use, at most it was not more than 3 million cases. Sales to the Government to carry out provisions of the order totaled less than 200,000 cases. A minimum of 2 million cases of shell eggs were in storage on July 1 under conditions contrary to the provisions of the order.

The difficulties of carrying out WFO-40 lay in the fact that it was hastily drawn up. Administrative problems were not thoroughly considered. As late as February, no plans had been made for directing shell eggs to dehydrators to meet current commitments.

<sup>17</sup> *The Poultry and Egg Situation*, September 1943, p. 6.

Had the original provisions of the order been completely enforced, all shell eggs in storage would have been forced into the hands of driers, interfering with normal trade procedures and with the normal storing of eggs for future use.

### *Maximum Price Controls*

Eggs and egg products came under maximum price controls with the issuance by Office of Price Administration of TMPR-22 on October 5, 1942. This regulation established prices on all poultry items at all levels of distribution at the highest price from September 28 to October 2, 1942, inclusive. When the regulation was issued, egg production was declining and egg prices were rising seasonally. The regulation tended to retard further price increases.

The "freeze" regulation on eggs remained effective until March 6, 1943 when Maximum Price Regulation 333 was issued. This regulation established maximum prices paid by retailers for shell eggs, and ceiling prices at wholesale for liquid, frozen, and dried egg products, and included allowance for usual seasonal variation. Retailer ceilings were based on fixed mark-ups over net cost. But the regulation failed to place under price controls assorted eggs. Such eggs were uncandled, ungraded eggs (usually called current receipts), and the presumption made by OPA was that retailers buying such eggs would purchase them in proper alignment with other grades. The trade, however, soon seized upon this loophole as a means of selling quality eggs at above-ceiling prices.

As the demand for eggs at wholesale began to exceed supplies at customary margins below retail levels, maximum prices for wholesale grades and current receipts at the first receiver's level were established in early July 1943. The ceiling prices under MPR-333 as originally issued were calculated on a basis of a basing city plus or minus freight. This method of calculating ceiling prices proved to be inflexible and complicated, and tended to divert supplies away from areas where there had been large wartime increases in population.

After more than a year's experience with this procedure, the Office of Price Administration issued a general revision in September 1944. The revised maximum price regulation provided a schedule of prices by zones, which was relatively simple and which corrected many of the inequities that had prevailed among areas. Most of the numerous amendments to the price order were made to provide a

simpler and more workable structure. This was particularly true with respect to simplifications of grade and weight classifications.

The general level of price ceilings as developed early in 1943 has remained in effect with minor variations until the end of price controls on eggs. In developing the series of ceiling prices, there was close cooperation and agreement between the Office of Price Administration and the U. S. Department of Agriculture. The prices as set forth in MPR-333 were believed to be the prices required to achieve the production objectives.

Egg prices were at or below ceiling levels during most of the war except part of the spring and summer of 1943 and most of 1945. However, the gap at ceiling prices between the demand for and supply of eggs was not very wide. Hence, it may be assumed that at no time during the war except possibly during 1945 and 1946 was egg production limited or retarded by price-ceiling regulations.

Price-ceiling regulations during 1944 probably resulted in a wider farm to retail price spread than might have been expected without the regulation. The prevalence of price ceilings during 1944 tended to result in a "stickiness" of retail prices at ceiling levels. This conclusion is suggested by comparing the farmers' share of the consumer dollar during the war years. Every year from 1941 through 1945, except 1944, the farmers' share of the consumer dollar was 77 or 78 cents. In 1944, however, it was 72 cents.<sup>18</sup>

A general criticism of the price regulations was that they were often issued without giving the trade sufficient time to study them and to adjust their operations. This was particularly true of Amendment 10 to MPR-333 issued July 5, 1943, effective on the same date. This amendment brought about major changes in the regulation, but the trade was not given time to study the regulation before it became effective and confusion resulted.

### *Summary and Conclusions*

An egg program for any particular year to be effective should be announced and implemented in the spring of the preceding year when chicks are being hatched for flock replacement purposes. Developments during the summer and early fall may affect the production pattern of the following year, but these are relatively less important. Except for 1942, goals and price support programs were

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<sup>18</sup> *The Poultry and Egg Situation*, August-September 1945, p. 13.

not announced or put into operation until late fall or winter, a time when the following year's production pattern was already largely determined.

Wartime developments with the egg industry indicate the difficulties in accurately gauging future demand. However, even if the demand had been closely evaluated, Government programs from 1942 on would not have tended to bring about an equalization of the demand and supply. Dried-egg pricing policies in 1943 together with the pricing schedule in MPR-333 resulted in an uneven distribution of supplies for civilians, and in poor utilization of marketing facilities. Dried-egg procurement in 1945, presumably for price support when prices were 10 to 15 percent above support levels, placed pressure on civilian supplies and tended to expand flocks for 1946 production. The operation of the War Food Order 40 did not bring about the intended diversion of shell eggs to dried-egg uses in the spring of 1943.

The price-ceiling structure as instituted in early 1943 was higher than required to meet minimum egg needs for egg production during the war years which were used for establishing goals. OPA ceiling prices tended in 1944 to result in a wider spread between farm and retail prices than would have occurred without price ceilings. MPR-333 as originally issued was complicated and unintentionally tended to divert supplies away from areas where most needed, but later amendments simplified the regulations.

There was need for greater integration of the egg program with the over-all food programs. In some cases feed was used for egg production when it might have been used to better advantage for milk or meat output. Some diversion of milk-drying facilities to egg drying occurred also, despite the greater need for milk in dried form.

Although many difficulties were encountered each year, the demand for and supply of eggs and egg products over the 6 war years (1941-46) were reasonably well in balance. This was more a result of fortuitous circumstances arising from the over-all world food shortages rather than to effective planning.



## WARTIME MEAT POLICIES

WILLARD D. ARANT  
*Swift and Company*

**A**CUTE memories of long queues, empty meat cases, and meatless meals should not be permitted to obscure the several accomplishments of government wartime meat policies. Appraisal of these policies can best be undertaken in terms of their purposes and the degree to which they were achieved. What did the government set out to do with the nation's meat? In broad terms, the fairly consistent objectives were the following:

1. Production of as much meat as possible with the available feed, land, and manpower, having regard for the alternate wartime demands for these resources.
2. Marketing of livestock at times when meat was most urgently needed.
3. Control of the cost of living.
4. Procurement for the armed forces and the Allies of their meat requirements.
5. Distribution of the civilian meat supply equitably among areas, seasons, trade channels, and individuals.

It will be readily perceived that, while each of these purposes was desirable in itself, not all could be achieved with what the proponents of each might have called perfect success. None can be considered wholly by itself. Problems of price control, particularly, are commingled with all the others. Despite the interaction of the various types of government programs, it will facilitate the discussion to consider separately the attempts to meet the five major objectives listed above.

### *Production*

The phenomenal levels of meat production during the war—one third above the 1935-41 average—can be attributed in part to early government support price policy, but the principal explanation is to be found in the usual influences: prices and profits (feeding ratios) and the availability of feed.

Early in 1941, with our defense program well under way and domestic purchasing power increasing rapidly, with Great Britain isolated from her sources of pork on the Continent and suffering at home from a shortage of imported feeds, with our granaries bulging, and finally, with the Lend-Lease Act on the statute books, the De-

partment of Agriculture determined that a substantial increase in meat production would be required. At a time when hogs were selling in Chicago at about \$8.00 per cwt., the Department announced a support price of \$9.00 per cwt. indefinitely, and asked farmers to produce heavy hogs and to increase breeding for fall litters. Lard and pork from heavy hogs were purchased for Lend-Lease shipment. Coming at a time when the hog-corn ratio was about average, these steps encouraged producers to start building up hog numbers somewhat faster than they might have otherwise.

In spite of price ceilings on lard in December, 1941, and on pork in March, 1942, hog prices continued to rise somewhat and the hog-corn ratio averaged 15.2 in the year ending June 30, 1942, and 16.0 in 1943, (reaching a peak of 19.4 in October, 1942), compared with the long-term average of about 11.6. With such ratios, farmers exceeded the announced production goals of the Department of Agriculture in both numbers and weights.

The record pig crops of 1942 and 1943 were made possible by bumper corn crops and the consumption of accumulated reserves of grains. Beginning in 1942, when much wheat was piled on the ground for lack of storage, the government subsidized the use of wheat for feed.<sup>1</sup> This policy continued in 1943 and 1944.

While hindsight on the hog gluts of 1943-44 and the subsequent shortage of grains both for relief shipments abroad and for livestock feeding indicates that we used up our feed reserves too rapidly, the majority, but by no means unanimous, opinion at the time was in favor of the "bare-shelf" policy. Governed by the immediate need for concentrated foods such as meat and fats, and the fear that surpluses would rear their ugly heads again after the war, we accumulated little reserve to help meet such contingencies as the world food shortage of 1946, caused in large part by severe drouths in other countries.

With the bottom of the feed bin becoming visible in a few places late in 1943, some decline in livestock feeding was inevitable. The reduction in the spring and fall pig crops of 1944, however, was much sharper than necessary. Farmers were discouraged by the failure of the Department of Agriculture to make good its support prices in July, 1943;<sup>2</sup> to spread marketings by instituting a hog

<sup>1</sup> "We have millions of bushels of wheat not now needed as food, but the need is urgent for meat and milk and eggs which can be produced from wheat used as feed." (Report of the Secretary of Agriculture for 1942, p. 73.)

<sup>2</sup> *Chicago Daily Drovers Journal*, July 8, 1943.

marketing permit system (although one had been prepared as early as November, 1942); and to extend its support prices to all weights of hogs and to require that support prices be paid by order buyers and dealers as well as by meat packers. Especially discouraging were the announcements by the War Food Administrator that hog support prices would be lowered from \$13.75 to \$12.50 (Chicago) on October 1, 1944, and by the Office of Price Administration that hog ceiling prices would be reduced commensurate with the reduction in floors. A general belief that the war in Europe would be over in the fall of 1944 had been fostered in part by high government officials, leading to an over-cautious attitude on the part of hog raisers.

Production of range beef cattle, already in the upswing of a long cycle, was stimulated by high prices and unusually good range conditions, but not by government policy. No support prices were announced for cattle.

Despite record numbers of cattle, and over-stocking of ranges in some times and places, much grass went to waste. More grass beef could have been produced if the government had devised some method of encouraging longer grass feeding, such as a premium for heavy cattle and beef in certain seasons.

The second stage of beef production, that of cattle feeding, was officially discouraged—at least as to long feeding—by the early beef price regulations which froze prices as of March, 1942, when the spread between grades was seasonally narrow; by the permanent beef price regulation of December 16, 1942, which provided an artificially small spread between the prices of Good and Choice beef;<sup>3</sup> and by a further reduction in the spread between the values of Good and Choice cattle by a subsidy adjustment at the end of 1943. This official discouragement to long feeding of cattle was allowed to stand throughout 1944, several months after it became clear that hog numbers had been reduced to such an extent that an increase in cattle feeding was not only possible but was the quickest way to increase the meat supply. Actually, cattle feeding was not

<sup>3</sup> *Revised Maximum Price Regulation 169*, "Beef and Veal Carcasses and Wholesale Cuts." In the Statement of Considerations to the issuance of this regulation, OPA stated:

"Historically, the spread between AA and A has been wider than the \$1.00 spread provided by the Revised Regulation. . . . A larger spread would tend to encourage such beef (better than A or Good) to a degree which would be unwarranted in view of the wartime need for obtaining the most efficient production of meats from the available supplies of feeds."

discouraged as much as the makers of official policy might have wished, because the market prices of fed cattle remained somewhat higher than their true value under the beef ceilings and subsidies. This was due in part to peculiarities of the cattle price stabilization program, which allowed high prices for some grades to be offset against low prices for other grades, and in part to the black market, which was most intense throughout the war on the better grades of beef cattle. The spread thus provided, however, was a rather shaky foundation for the risky business of cattle feeding. The confidence of feeders was improved by various adjustments in 1945, including a 50 cent per cwt. feeder subsidy.

Production of baby beef by grain feeding of 300- or 400-pound calves off the range—the quickest way to produce beef, as we discovered in World War I—could have been stimulated by a premium on baby beef. As it was, such calves went to slaughter or, if purchased as feeders at their slaughter value, had to be roughed through another year before grain feeding, in order for the feeder to “come out.”

### *Marketing*

Apart from the policies which affected production, government action had only a minor influence on the timing of livestock marketing.<sup>4</sup> In the case of hogs, production decisions, by and large, are controlling. However, hogs may be marketed any time between the ages of seven and nine months (or even six and ten months, with forced feeding early and slow feeding late). Decisions within this interval can be extremely important from the standpoint of avoiding unmanageable peaks in marketing. As early as December, 1941, representatives of the meat industry urged the Department of Agriculture to plan for regulation of receipts during the 1942-43 marketing year. In November, 1942, Secretary Wickard announced that a permit system had been worked out under authority delegated by the War Production Board and would be used if necessary. When the real need for such a system came, in 1943-44, the Department backed away from it and relied on publicity urging farmers to spread their marketings. The campaign was largely unsuccessful because the individual farmer, ignorant of the plans of other farmers, received little effective guidance. Certain central

<sup>4</sup> The major wartime problem with respect to marketing was the diversion of supplies away from federally-inspected channels. This will be discussed in connection with government procurement and civilian distribution.

markets did operate their own permit systems. Minor adjustments in ceilings and floors at various times had some success in influencing hog marketings.<sup>5</sup>

In the case of cattle, the official belief throughout the war was that producers were missing the bus by failing to liquidate their herds when demand for meat was high. The Department of Agriculture repeatedly urged greater cattle marketings, but by January 1, 1946, cattle on farms (not for milk) had declined only one percent from the peak levels of 1944 and 1945. The holding back of cattle was in part a result of the uncertainty surrounding the government programs. It has been the experience rather consistently under controls that the man who held on a little longer secured a higher price. Also, in many cases, income taxes could be reduced by postponing the realization of profits until the next taxable year, when rates might be lower or the taxpayer might be in a lower bracket. Exceptional pasture conditions were another factor.

Cattle liquidation might have been encouraged by an announced policy that prices would be reduced periodically! Since no one would seriously propose such a move, the realistic policy would have been to set a level of prices perhaps a little higher than the cattle prices at the beginning of price control and make it clear that these prices would be maintained, so that nothing would be gained by holding back, after the first few months. Apart from problems of enforcement and the fate of similar government promises, such a consistent policy would have been difficult under the shifting management of OPA, WFA, and the Office of Economic Stabilization.

Whether we ended the war with too many cattle on the ranges remains to be seen. The estimated cattle population is not unduly large compared to marketings in the last two years, and a sustained national income may keep up the demand for the better grades of beef at even higher prices than prevailed during the war.

### *Price Control*

Barring an adequate war finance program that would have prevented civilian buying power from leaping upward with government expenditures, meat price control in some form inescapably had to be a part of the controlled war economy.

<sup>5</sup> For example, the increase in ceiling price for hogs 240-270 lbs. on October 30, 1944, and for butcher hogs over 270 lbs. on December 12, 1944.

The complications that developed under a system of inflexible price controls can be traced to the peculiarities of the livestock and meat industry.<sup>6</sup> It is an industry characterized by ease of entry, extreme pliability, relatively low profit margins, and in normal times by seasonal, weekly, daily, and even hourly fluctuations in prices. The types of operators include ranchers, feeders, livestock dealers, livestock market agencies, meat packers (processing and non-processing), non-slaughtering processors, wholesalers and jobbers, hotel supply houses, hotels and restaurants, ship suppliers, and retailers. Livestock and meat can move through few or many of these channels of trade on the way to the ultimate consumer. Meat is perishable and very difficult to define in terms of cuts, grades, fat, trim, tenderness, and other characteristics which normally affect the price in the course of bargaining between buyer and seller. Meat can be sold fresh, frozen, cured, dried, smoked, or cooked. It can be manufactured into sausage or canned meats or combined with other foods in soups, stews, etc. The mere listing of these factors indicates the almost endless possibilities for modifications in the flow of meat in response to either free or directed price changes. Price is only one of many variables; when price is held constant, other market factors can easily change.

In the absence of artificial controls, prices determine the "who, what, when, where and how" of the meat business: who will get meat, what will be produced, when and where livestock and meat will be sold, and how meat will be processed, packaged and sold. Competition among buyers, competition among sellers, and bargaining between buyers and sellers see to it that meat is distributed over time and space and in the form and through the channels that consumers desire. In a joint product industry, free price movements are especially important in clearing the market of different products (e.g., hams and pig's feet) at an equal rate.

To those who knew the industry intimately, it was a foregone conclusion that price ceilings would not work well.

The original "freeze" technique was applied to meat prices only for want of something better.<sup>7</sup> Specific dollars-and-cents ceiling

<sup>6</sup> "In undertaking to regulate prices in the meat industry, the Administrator has come up against one of his thorniest administrative problems. The effect of the regulation (RMPR-169) can only be gauged in the light of an understanding of the economics of a vast and intricate industry."—U. S. Emergency Court of Appeals, No. 101, *Armour and Company vs. Chester Bowles, Price Administrator*.

<sup>7</sup> "It proved utterly unworkable both at the wholesale and retail levels. It was as disruptive and unsatisfactory to the industry as to the consumer. The necessary



prices could not be issued immediately, but had to await the writing of detailed descriptions of products and terms of trade. This process took months because the industry's traditional reliance on price bargaining and individual selection had not required the development of such trade specifications, and they did not exist. If, as some officials of the OPA have conjectured,<sup>8</sup> the degree of competition in an industry is pretty well indicated by the amount of time required by the OPA staff to develop price regulations, there can be little doubt that the meat industry ranks among the most vigorously competitive.

For the first year and a half of meat price ceilings, prices of livestock remained free. Within a few weeks after the imposition of ceiling prices on meats, the uncontrolled prices of livestock rose to such an extent that the margins of many meat packers were seriously squeezed.<sup>9</sup> As OPA stated, "Prior to price control the price paid for livestock was determined by the price which the meat packing industry could receive for its product."<sup>10</sup> This normal relationship was disrupted under meat price control by three principal factors, apart from the price regulations themselves; (1) the desire of meat packers to obtain sufficient supplies to serve their trade, despite the general shortage; (2) the attempt of each meat packer to increase his volume in order to reduce his overhead costs per unit, knowing that he could sell any reasonable increase in volume at the ceiling (an attempt which was generally futile, with a given quantity of livestock available); and (3) the ever-present competition of the black market.

Live hog and cattle price control, admittedly very difficult, especially in the case of cattle,<sup>11</sup> was begun late in 1943. Maximum

records for enforcement of a freeze do not exist and the product is far too heterogeneous and variable."—OPA Supplementary Statement of Considerations to RMPR-169.

<sup>8</sup> "Price control in the perfectly competitive market is a matter of classic difficulty. Price control in the imperfectly competitive market is, by comparison, at least, a simple matter. . . ."—J. K. Galbraith, former Deputy Administrator of the OPA, "Price Control: Some Lessons from the First Phase," *American Economic Review*, XXXIII, Supplement, 1943, p. 254.

<sup>9</sup> Secretary of Agriculture Claude R. Wickard said that "the price squeeze has become so tight that there is a great danger of wide open violations of the price ceilings for meat." (Speech, Washington, D. C., August 19, 1942.)

<sup>10</sup> OPA Statement of Considerations Involved in the Issuance of Amendment 26 to RMPR-239, "Lamb and Mutton Carcasses and Wholesale Cuts."

<sup>11</sup> "We must realize that ceiling prices on live animals would be very difficult to administer. In the case of cattle, we have a farm product that shows an extremely wide variation in quality. No two animals are alike. . . ."—Roy F. Hendrickson, Administrator, Agricultural Marketing Administration, before the National Association of Retail Meat Dealers, Chicago, Ill., August 17, 1942.

prices were set at levels which were too high in relation to the meat ceilings, with the expectation that livestock prices would fluctuate seasonally under these levels.<sup>12</sup> This was borne out in the case of hogs in 1943-44, and to a lesser extent for cattle, although cattle showed a loss to meat packers even when purchased considerably below the maximum. With the acute shortage of meat in 1944-45, all livestock sold quite consistently at maximum prices, causing severe losses in meat operations. A series of small adjustments in the spring of 1945, prompted in part by Congressional investigations of the administration of the mate programs, improved margins considerably, although adjustments were still necessary under the provisions of the Barkley-Bates amendment to the Stabilization Act, effective July 1, 1945, which required that a reasonable profit be allowed on the processing of each species of livestock. The OPA had previously refused to provide a profit on each species, or even to recognize total costs<sup>13</sup> so long as over-all profits of the industry as a whole were greater than the 1936-39 average.<sup>14</sup>

Discouragement over a long period brought many meat packers to the choice of "going broke or going black." Richard V. Gilbert, Economic Adviser to the OPA Administrator, has testified that "some of these people that were put into the red went into the 'black market,' and then were able to pay anything they pleased for livestock because they could recoup their costs at 'black market' prices."<sup>15</sup>

Early in 1946, stimulated in part by the 10-day packinghouse strike in January, the black market reached full bloom. The war was over. Patriotic motives were less influential. The manpower and gasoline shortages had eased, and more and more people discovered that all they had to do to get into the meat business was to have a rope, a knife, and a truck, and to pay slightly more for

<sup>12</sup> Testimony of Richard H. Field, general counsel of OPA. Hearing before the Senate Special Committee to Study and Survey Problems of Small Business Enterprises, Part 82, Impact of Price Controls and Stabilization Policies on Small Business, VII, December 17, 1945, pp. 9322-23.

<sup>13</sup> In the case of cattle operations, OPA did not even recognize out-of-pocket costs, until directed to do so by the Emergency Court of Appeals. (*Armour & Co. v. Bowles*, 2 P.C., paragraph 52179.)

<sup>14</sup> OPA determined that the industry's earnings for that period averaged 4.1 percent on net worth and 1 percent on sales. For members of the industry other than the major meat packers, earnings were 7 percent on net worth, and 1.4 percent on sales. (Testimony of Richard H. Field, *op. cit.* pp. 9317-18.)

<sup>15</sup> Hearings before the House Committee on Agriculture, October 26, 1943. Many black market operations begun in 1942 and 1943 continued throughout the remainder of the price control period.

cattle than legitimate slaughterers were permitted to pay under MPR-574, the live cattle regulation. Enforcement broke down at all levels of distribution.

Custom slaughtering early became a popular way to by-pass the wholesale meat ceilings. Retailers and processors wanted meat, and many slaughterers were glad to enter into arrangements whereby they could at least avoid losses. Beef price regulations required a custom slaughterer to reimburse the owner of cattle or calves, if necessary, to reduce the cost of the dressed meat to the wholesale ceiling. After three years, OPA decided that "this provision was unenforceable because the slaughterer could not determine accurately the live cost of the cattle which were delivered to him for slaughter."<sup>16</sup> Despite its admitted unenforceability, the identical provision was inserted in the dressed lamb regulation in a frantic attempt to halt the growing black market in lambs in May, 1946.

### *Subsidies*

As one phase of the government's program to control the cost of living, wholesale and retail meat prices were reduced approximately 10 percent in June, 1943, and in order to equalize returns to producers, subsidies were paid through processors. The meat packing industry objected to being made the mediaries in subsidy payments, maintaining that if subsidies were to be paid, they should be paid directly to those whom they were intended to benefit. Some livestock producers also objected to the subsidy program.

Meat was selected for the rollback and subsidy program because of its importance as a cost-of-living commodity and for relative ease of administration, rather than because meats had risen in price more than other foods. Actually, meat prices had risen less than the average of all foods since the stabilization date of September 15, 1942.

Once having in hand the versatile tool of subsidies, the administration turned it to other purposes than merely to offset the rollback. Subsidies were the path of least resistance. They were used

<sup>16</sup> *Fifteenth Quarterly Report of OPA*, p. 14. Amendment 55 to RMPR-169, effective June 15, 1945, established maximum prices for custom slaughtering services in lieu of the reimbursement provision. (Incidentally, these maximum prices reveal quite clearly one of the aspects of OPA thinking; i.e., the theory that a single commodity should have two prices in the same market, depending on who buys or sells it. In this case, a custom slaughterer having rendering facilities was required to remit to the owner of the cattle a larger amount than a slaughterer not having such facilities.)

to encourage cattle and lamb feeding and to relieve the squeeze on meat packers' margins. The subsidy tool was also made to take on the aspect of a policeman's club, but in this role it was ineffective in cases where black market profits were so great that slaughterers did not even apply for subsidies.

The meat subsidies met their purpose only to the extent that the price rollback caused labor to tolerate the 15 per cent Little Steel formula a little longer than it might have otherwise, in the face of a cost of living that had risen considerably more than 15 percent in any case. Apart from this rather nebulous, and certainly only partially successful, retarding of a wage-price spiral, subsidies had no other anti-inflationary effect. (Insofar as subsidies were paid out of bank borrowings, they were inflationary.) Meat subsidies applied to the full production of the commodity, not just to the marginal production as in the case of some of the metal subsidies. Neither was the benefit of the rollback confined to those who needed public aid; it extended to all consumers, except voluntary (and involuntary) vegetarians. It has been remarked that "everyone was on relief."

Subsidies certainly had no justification whatever after February 14, 1946, when the wage-price line was officially breached.

#### *Government Procurement*

Whatever the difficulties of the civilian population, the armed forces did get meat in ample quantities, and billions of pounds were made available to allied and liberated nations under Lend-Lease, without reducing the *average* per capita domestic consumption below minimum nutritional requirements at any time.

Not all was smooth sailing, however, in fitting the government's demands most efficiently into the total meat picture. As soon as prices were controlled, a number of perplexing problems arose. Prices for sales to civilians and to government agencies should have been such that net realizations, after allowing for costs of special boxing, etc., were approximately equal. This was important so that profits or losses would not cause meat packers to avoid either government or civilian business. Also, differential realizations would cause inequities among meat packers, all of whom operate in the common national livestock market. If net realizations on sales to the government were higher, federally-inspected meat packers would have an advantage in competing for livestock against non-

federally-inspected meat packers, who in general are not permitted to sell to the government. If government business were less profitable, federally-inspected meat packers would be at a disadvantage.

Most of the meat sold to government agencies was specially prepared and packed (e.g., frozen boneless beef, overseas hams) so that many additional expenses in the form of labor, packaging materials, freezing and shrink had to be taken into account. OPA allowances for these expenses were generally insufficient and remained so for over two years in some cases.<sup>16a</sup>

Selling expenses turned out to be a puzzling link in the relationship between the ceiling prices for government and civilian sales. Meat packers who maintain a permanent sales organization, including branch houses in the case of the 8 or 10 largest packers, can make no appreciable saving by selling through other channels.<sup>17</sup> Their selling overhead runs on just the same. In a free economy, quantity sales may be made at a discount in times of relative surplus, but often command a premium in times of relative scarcity. With meat continually short under price control, carload or quantity discounts required by OPA tended to discourage sales to the government or to other quantity buyers. At the other extreme, a few small federally-inspected meat packers saved selling expense altogether by selling their entire output to the government. For the great bulk of the industry, government business was less profitable than civilian business until the spring of 1945. Claims for actual losses on meat sales to the government were filed by a number of meat packers under OPA Procedural Regulation No. 6, from July 3, 1942, to May 17, 1943, when OPA withdrew that privilege from the meat industry. Appeals were taken from OPA's denials of these petitions, and the matter is still in litigation at this writing.

During the first year or two of price control, the responsibility of supplying the government fell disproportionately on the larger meat packers. As with other industries, the buying agencies preferred to deal with a few large companies rather than many smaller

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<sup>16a</sup> For example, at the instance of the armed forces, the OPA increased the allowance for packaging or wrapping beef carcasses or wholesale cuts for export shipment in Amendment 52 to RMPR-169, effective February 3, 1945. The original regulation was issued in December, 1942.

<sup>17</sup> The largest meat packers normally sell principally through their own outlets. In 1935, the 8 largest packers sold only 6 to 8 percent of their meat to wholesalers and jobbers, and only 7 to 10 percent to corporate grocery chains. (A. C. Hoffman, *Large-Scale Organization in the Food Industries*, Temporary National Economic Committee, Monograph No. 35, p. 20.)

ones. By appeals for cooperation, and in some cases by the use of food priorities—affectionately called “Valentines” by their recipients—the government obtained its supplies from a relatively small number of companies.

In an effort to increase offerings of meat to war agencies, the OPA restricted meat packers’ civilian deliveries to certain percentages of their civilian deliveries in corresponding quarters of 1941.<sup>18</sup> The excess above these quotas could be disposed of only by sale to the government, or temporarily by storage, although the latter was also restricted for a time.<sup>19</sup> The Meat Restriction Order, while good in theory, suffered from the chronic malady of all OPA meat orders—lack of enforcement.<sup>20</sup> The diversion of livestock away from federally-inspected meat packers was so great that their total slaughter of some species was little, if any, greater than their civilian quotas. Government requirements had to be met, nevertheless.

Beginning in the summer of 1943 in the case of beef, and the summer of 1944 in the case of pork,<sup>21</sup> the distribution of government business was made more equitable by the requirement that all federally-inspected meat packers “set aside” specified percentages of their production for sale to war procurement agencies. As livestock was diverted to the black market, it was necessary for the government to take as much as one-half of federally-inspected production at times in order to meet its requirements.

With the government taking a large share of the annual meat supply, the timing of purchases within the year became of considerable importance. Since a large part of government meat was either frozen, canned or long-cured, it was logical that this meat be prepared in the seasons of flush production, leaving a more even supply for civilians over the year. After the first year of the war, when it became apparent that even military insistence could not change the time of livestock marketing, this general policy was

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<sup>18</sup> OPA, *Meat Restriction Order*, effective October 1, 1942.

<sup>19</sup> Food Distribution Order 48, *Restrictions on Inventories*, effective April 6, 1943. There was little need for this order because OPA ceilings had no seasonal variation to encourage even the normal amount of storage.

<sup>20</sup> “The present black market in meat first manifested itself in excessive slaughter by various packers in violation of slaughtering quotas imposed under Restriction Order No. 1, effective October 1, 1942.”—*Fifth Quarterly Report of the OPA* (covering the period ended April 30, 1943), p. 55.

<sup>21</sup> Omitting consideration of FDO-28.3, which was in effect for a few days in March, 1943.



gradually adopted, first under the Food Requirements Committee and later with the aid of the War Meat Board.

### *Distribution Among Areas*

Areas which consume more meat than they produce depend on in-shipments of meat from the surplus areas. Such shipments are normally supplied by federally-inspected meat packers, since non-federally-inspected meat cannot legally be transferred across state lines.

With the government taking huge quantities of federally-inspected meat, the populous areas were destined to suffer severe shortages unless drastic corrective measures were taken.

Possible steps included (1) increasing the proportion of livestock slaughtered under federal inspection, (2) shipment of live animals across state lines, (3) a price policy which would encourage federally inspected meat packers to ship more of their meat to the deficit areas, and (4) a tight rationing program to restrict consumption in the surplus areas. A fifth point might be added in the light of experience: simple enforcement of price ceilings would have prevented some of the maldistribution which occurred (although perhaps the black market should be credited with increasing the supply in some deficit areas by causing live animals to be shipped across state lines).

The number of meat packers qualified to sell meat to the government or to ship in interstate commerce was increased by the provisions for limited federal inspection under the Fulmer Act<sup>22</sup> and for certification under the Patman amendment to the Stabilization Act.<sup>23</sup> The quantity of meat thus added, however, was largely offset by diversion to non-federally-inspected slaughter. Attempts to channel more livestock through federally-inspected meat packers by means of the various slaughter control regulations<sup>24</sup> generally failed for lack of proper enforcement machinery by either OPA or the War Food Administration.

Price ceilings tended to discourage rather than encourage shipments of meat to many meat-deficit areas. It would be too much to expect that any agency, on the first try, could have established a perfect geographical pattern of price ceilings in the complicated

<sup>22</sup> Public Law 602, 77th Congress, 2nd session.

<sup>23</sup> Public Law 108, 79th Congress, 1st session.

<sup>24</sup> OPA Meat Restriction Order 1, Food Distribution Order 61.1, Food Distribution Order 75.1, OPA Control Order 1, OPA Control Order 2, War Food Order 75.7.

meat industry. OPA made some needed adjustments, such as allowance of total transportation costs into certain critical areas, but in general its policy was to hold the original pattern of prices, particularly after the "hold-the-line" order of April 8, 1943.<sup>25</sup> Many meat packers sold their output at factory door without effort,<sup>26</sup> while others continued to supply their former customers even in the face of unfavorable ceilings. In some cases, OPA was fully aware that its ceilings were inadequate.<sup>27</sup>

A "fair distribution order"<sup>28</sup> was in effect during July and August, 1945, requiring all meat packers to distribute their civilian supplies in the same geographical pattern as in the first quarter of 1944, when meat was fairly plentiful. Distribution was improved somewhat, but the order of course had no effect on the basic difficulty—the laxity of the slaughtering quota provisions of Control Order 1.

#### *Distribution Among Individuals*

When price ceilings are in effect, the demand for meat at ceiling prices generally exceeds the supply. If this were not so, there would be no need for price control. Since shortages are therefore unavoidable, some arbitrary method of spreading supplies is necessary. It is not a question of rationing or not rationing; it is only a question of whether meat will be distributed by private rationing devices (such as "first come, first served," or "one pound to a customer") or by a government rationing program. The latter, properly conceived and enforced, assures everyone his fair share without the tremendous waste of human effort involved in queuing.

Rationing also relieves pressure on price ceilings, since no one can expand his consumption by bidding higher prices, even though he is able and willing to do so. Conceivably, a well-enforced rationing system could make price ceilings unnecessary—prices could be controlled by variations in coupon values and government purchases. Meat could be "rationed to a surplus" and the government would buy the surplus. Rationing could also force meat to flow evenly over the country by limiting consumption in the surplus

<sup>25</sup> Executive Order 9328.

<sup>26</sup> Small western meat packers "are not selling to eastern markets and are operating only in certain local areas."—Report of an OPA meeting with meat wholesalers, *Victory* (published by the Office of War Information), February 17, 1943.

<sup>27</sup> OPA stated in one instance, "This delivery allowance will not cover the full cost of reaching all these points, but it is expected that sellers in most cases will absorb the difference to maintain outlets in such markets." (Statement of considerations involved in the Issuance of RMPR-239, Lamb and Mutton Carcasses and Wholesale Cuts.)

<sup>28</sup> Amendment 8 to Control Order 1.

areas. These powers of rationing were the bases of the "meat management program" worked out by the American Meat Institute and sponsored by the Livestock and Meat Council.<sup>29</sup> A successful program along these lines could have avoided practically all of the problems arising from price control, except the problem of defining cuts of meat.<sup>30</sup>

As actually operated, rationing was never tight enough, either in the fundamental step of seeing to it that all meat was made to flow in channels where it would be exchanged for points,<sup>31</sup> or in the magnitude of the point values,<sup>32</sup> to be of substantial help in controlling prices. The delay of nearly a year in launching the rationing program was a serious handicap. Those who had become accustomed to violating price ceilings and quotas did not hesitate to violate one more regulation. Many black market operators sold meat without coupons, while others bought counterfeit coupons, or obtained ration stamps by theft or bribery.<sup>33</sup> The number of such illegal coupons, while running into the hundreds of millions of points per month, was not of overwhelming importance, however, when compared with the six or seven billion points per month issued to consumers.

The greatest single shortcoming of the rationing program was the failure to equalize the meat purchasing power of farmers and city-dwellers. All farmers were given full ration books, regardless of the fact that they may have had full larders (or lockers). In many cases, friends and city cousins were given points which allowed them to obtain more than the official ration. Many people were also able to take advantage of ration-free restaurant meals.

Meat rationing in the United States is a tremendous job, requiring a degree of administrative attention and vigorous enforce-

<sup>29</sup> *A Program for Solving Wartime Meat Problems*, Livestock and Meat Council (97 livestock and meat organizations), April, 1943.

<sup>30</sup> Even this problem could be avoided by a system of "dollar rationing," although this would have serious problems of its own.

<sup>31</sup> "The basic principle of a flow-back system of ration currency is that the first exchange of product from producer to distributor or consumer shall be for points or coupons as well as money. There are so many people making butter and selling it directly, and so many farmers or small slaughterers selling meat, that a significant proportion of the butter or meat supply is probably being consumer off the ration."—*OPA Fifth Quarterly Report*; pp. 26-27.

<sup>32</sup> "The Office does not want to cause any waste of food, so it is necessary to issue ample ration currency in order to be sure that all supplies find a market. Thus, there will always be some stamps at the end of a period for which a variety of supplies may not be available."—*OPA Fifth Quarterly Report*, p. 27. This policy is in contrast to that of Great Britain, where every coupon was religiously regarded as an order for meat which must be honored.

<sup>33</sup> *OPA Fourteenth Quarterly Report*, p. 87.

ment which OPA was unable to devote to it because of its preoccupation with problems arising out of the rigid price ceiling type of control. Rationing on the whole was beneficial, as proved by the common experience that meat was generally easier to obtain when rationing was in effect than when it was not. Rationing would have been much more successful if it were started at the beginning of the control period, accompanied immediately by a consumer and dealer educational campaign along the lines of the Canadian program, and if more of OPA's resources had been concentrated on compliance. It might have been possible to enlist voluntary cooperation to such an extent that no one would want to risk the disapproval of his neighbors by breaking the rules.

### *Conclusion*

The part of meat in the wartime economy was highlighted by outstanding performance on the production side, an admirable record in making our armed forces the best fed in history, and the shipment of tremendous quantities of meat to help feed our Allies—all this from a nation which had not been an important meat exporter for a considerable number of years. It may be said (with the benefit of hindsight) that we fed up our grain reserves too fast and reached the production peak too soon. The fear of unmanageable surpluses disturbed our control authorities before we even knew when the postwar relief requirements would have to be faced. But despite these understandable inaccuracies of calculation, the production job was well done.

Considering the wartime demands for resources of all kinds meat production could not wisely have been expanded rapidly enough to satisfy both the military needs and all the civilian demands arising from wartime payrolls.

Therefore, wartime meat control was essential in view of the inevitable scarcity. The problem of a fair distribution of the scarce civilian supply was attacked with numerous measures, none of them attended by outstanding success. The rationing program, at its best, accomplished much toward equitable distribution but it was so designed as to function satisfactorily only when shortages were very moderate at ceiling prices. Rationing, to be effective in periods of acute shortage, would have had to be much more "tight" with fewer exemptions (farm slaughter, restaurant meals, etc.), higher point values, and better enforcement.

Owing to the nature of the commodity and the structure of the

industry, price control of meat by the specific ceiling technique was an attempt to cap inflationary pressure with a sieve. When that failed to work, other sieves were added, but enough interstices remained unplugged that a substantial quantity of meat was always uncontrolled. Price ceilings worked as well as they did because of the cooperation of the well-established members of the industry.<sup>34</sup> This was of sufficient importance to save the program, as long as these firms produced a substantial portion of the nation's meat. When enforcement broke down to such an extent that the complying meat packers could not buy a reasonable proportion of livestock in competition with black market operators,<sup>35</sup> price ceilings became largely fictional. Several months elapsed, however, before the public<sup>36</sup> and the government became convinced that meat controls were unworkable, and they were finally removed October 15, 1946.

OPA was handicapped in its enforcement activities not only by the complexity of meat control, but by a lack of an adequate enforcement staff, by a necessary reliance on local administrators (who understandably tended to be lenient where the local meat supply was involved), and by the failure of the courts to impose penalties sufficient to act as a real deterrent to profitable black market operations.

The nearest thing to a handle for effective control of meat prices appears to be not price itself but demand. This points to rationing and the auxiliary measures which make rationing effective. Two or three well-chosen controls, accompanied by extensive education and vigorous enforcement, would appear from experience to offer a fair chance of reasonable success in meeting wartime objectives.

<sup>34</sup> Thomas I. Emerson, Deputy Administrator for Enforcement, OPA, has stated, "It may safely be concluded that a very high percentage of the meat sold by federally inspected plants flows to the armed services and to wholesalers, retailers and restaurants at ceiling prices and in conformity with the rationing system." (Statement before the Sub-Committee of the Senate Committee on Agriculture Investigating the Food Situation, April 10, 1945.)

<sup>35</sup> Ten legitimate meat packers with widespread distribution were able to slaughter a weekly average of only 49,000 head of cattle in the five weeks ended June 1, 1946, compared with an average of 151,000 head in the corresponding period of 1941. Receipts at 67 markets were 15 per cent higher in the 1946 period. (Brief submitted to the Price Decontrol Board by the American Meat Institute, August, 1946, pp. 13, 14.) The period cited was prior to the abnormally low marketings of cattle which characterized the June and September periods of 1946.

<sup>36</sup> In contrast to previous reports on public opinion, a survey conducted early in October, 1946, by the Psychological Corporation at the request of the American Meat Institute showed that 64 percent of the respondents thought the government should take off OPA price ceilings on meat. This percentage is based on a preliminary tabulation of 600 interviews selected properly by geographic area and by city size.

## THE TOBACCO PROGRAM: EXCEPTION OR PORTENT?

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Congressman Flannagan:

"... the tobacco program has been the most successful agricultural program ever inaugurated in the country. It works. If this House will continue to leave the tobacco problems to the tobacco growers and their Representatives in Congress it will continue to work."

Congressman Hope:

Tobacco growers "already have what amounts to a monopoly.... If you do not have a quota you cannot produce unless you pay a very heavy penalty. It is not only a closed shop proposition but it is a closed union with a closed shop."

These statements on the floor of Congress, July, 1945, point up a major question about the direction of agricultural policy. Tobacco is one of the basic crops under the Agricultural Adjustment Act of 1938. The production-control and price-supporting features of this and other legislation may lead to an agriculture regimented, commodity-wise, in which favored groups of farms with adequate historical bases are given protected status by law. The experience in tobacco indicates the plausibility of such development. The legislation may also lead toward more and more splintering of farm programs into wheat, corn-hog, cotton, rice, potato, and tobacco (and other) programs, each with its own legislation and its own legislators, each with its own administration, each with its own pressure group. If such splintering of agricultural programs becomes a fact, how will agricultural policy be able to recognize and allow for the needs for inter-regional, inter-areal, and inter-farm adjustments—as well as adjustments within regions, areas, and individual farms? Again, the tobacco program has achieved this kind of separate, special status, so that the question is appropriate: Does tobacco indicate a trend or is it merely an exception?

This paper uses the experience in tobacco to illustrate the tendencies in the farm program to splinter into a number of separate programs for the different politically-important commodities. Equal emphasis is accorded the role of Congress, which is so organized that the "tobacco Congressmen," or the wheat Congressmen, or the dairy Congressmen can and frequently do "write their own



tickets." Tobacco merely stands out more clearly than other commodities as an example of what is happening generally. Other commodity groups and their Congressmen are striving for special treatment and getting it: The Department of Agriculture was reorganized in August, 1945, into a "Department of Farm Commodities." But a dilemma emerges: for commodity after commodity special regulation is achieved. Yet the very nature of this regulation—fixing prices, controlling production, assigning quotas, and finally controlling entry into particular types of farming—makes it essential that regulation for one commodity be made in the light of its interactions with policy for other commodities. However, Congressional organization and procedure being what it is, there is little hope for such general approach to agricultural policy today.

### *Background*

Something must be said as to the types of tobacco involved and their characteristics which are relevant to the control programs. Following this is a brief statement on the development and nature of the tobacco program on the eve of World War II.<sup>1</sup>

Six main types of tobacco are grown in the United States. Our interest is confined to four: burley, flue-cured, and the "dark tobaccos"—dark air-cured and fire-cured. In 1939 these four types accounted for a little more than 85 percent of the total poundage produced in the United States.<sup>2</sup>

1. *Flue-cured tobacco.* This tobacco accounted for more than 50 percent of the total poundage in 1939. Used in cigarettes, it is grown in the Carolinas, Virginia, Georgia, and Florida.<sup>3</sup> Heaviest production is in North Carolina, which enjoys 67 percent of the total national acreage allotment under the control program. In the 1930's some 60 percent of the flue-cured tobacco was exported; one-third of all flue-cured went to the United Kingdom; but, since the U. K. bought the better grades, this one-third accounted for half the income of flue-cured growers. In 1939 the war sharply curtailed British buying; flue-cured growers, who had rejected marketing

<sup>1</sup> An appendix is added which presents and discusses production, price, disappearance, and acreage figures under the control program, 1933-45.

<sup>2</sup> Information is drawn from the *Reports* of the Agricultural Adjustment Administration for 1939 and following years, from the comparable *Reports* of the Secretary of Agriculture, and from House of Representatives, House Report 1476 79th Cong., 2d Sess., Jan. 18, 1946.

<sup>3</sup> See H. B. Rowe, *Tobacco Under the AAA*, Brookings, Washington, 1935, p. 28, for a map showing dispersion of tobacco production in 1930.

quotas in 1938, found themselves with record supplies on hand. The Commodity Credit Corporation achieved an arrangement that brought the British buyers back into the market.

Increased demand for cigarettes, domestic and foreign (the latter made effective by Lend-lease and the willingness of the United Kingdom to use dollar-exchange to purchase tobacco for civilians), reversed the market situation. In 1940 the average farm price per pound was 16.4 cents; in 1943, it was 40.2 cents.<sup>4</sup> Flue-cured tobacco goals were increased 10 percent in 1942. In 1943, prospective demand was so high that the application of the formula under the Agricultural Adjustment Act of 1938 (henceforth A.A.A. of 1938) would have prevented the Secretary from announcing a marketing quota. Congress enacted a law setting aside the formula of the 1938 act. Demand now continues favorable, and production goals for 1946 call for a ten percent increase over the production of 1945; but with an eye to the future, Congress is passing legislation to permit the Secretary of Agriculture to submit a national marketing quota to a grower-referendum with respect to the 1947 crop.

2. *Burley tobacco.* Accounting for 25 percent of total U.S. poundage before the war, burley is grown in 15 states; but Kentucky accounts for 70 percent of the burley (1940) and Tennessee for 16 percent. Burley is used heavily in cigarettes and also in pipe tobacco; but, unlike flue-cured, only 5 percent of burley was exported in the late 1930's. The seasonal average farm price rose from 16.2 cents in 1940 to 45.5 in 1943. Production increased 75 percent in the 1942-45 period; but burley prices, at O.P.A. ceilings when markets opened in December, had fallen so that substantial quantities were being placed under loan with the Commodity Credit Corporation at 90 percent of parity in January, 1946.

3. *The dark tobaccos.* Together these constituted 10 percent of the total production in pounds (late 1930's). Both are grown in Western Kentucky and Tennessee. In addition, fire-cured is grown in South Central Virginia; dark air-cured is produced around Richmond, Virginia, and in southern Indiana. Fire-cured is the more important of the two, with a ten year average production (1929-39) a little more than three times as great as dark air-cured. Consumption of both tobaccos declined for 15 years prior

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<sup>4</sup> Total use of leaf-tobacco by U. S. manufacturers was 48 per cent greater in 1943-44 than in the 1935-39 period.

to the late war.<sup>5</sup> Fire-cured sold at 9.5 cents per pound (farm price) in 1940, at 23.4 cents in 1943.

*Inter-relationships.* Burley and flue-cured tobaccos, accounting, even before the war, for 75 percent of total production, move together politically. The importance of the dark tobaccos is economic: their growers are so situated that they may turn to burley tobacco as an alternative. Burley growers unite with their flue-cured allies to beat off or buy off this competition.

*Background of recent regulation.* This paper is critical of the trend governmental programs have taken in the effort to temper the impact of the market upon tobacco growers. But no one is to infer that the writer is advocating laissez faire as an alternative. The so-called "free market" worked none too well for tobacco growers. Before the first World War and well back into the 19th Century, tobacco producers had attempted cooperatively to influence the market. The famous "cut out" campaign of 1908 brought forth the night riders; private violence, exaggerated perhaps, occurred. In the middle 1920's renewed efforts were made, after disastrous price declines, to achieve commodity bargaining through tobacco cooperatives on the Sapiro model. "Tobacco Men to Cut Out 1925 Crop; Burley Producers to Get Rid of Burdensome Surplus by Drastic Plan"—so said *Wallace's Farmer*.<sup>6</sup> Therefore, when farmers turned to the national government, especially after 1933, they were simply re-directing their collective action. Tobacco was included in the program under the first Agricultural Adjustment Act. In 1934, the Kerr-Smith Tobacco Act provided heavy penalties for the marketing of surplus tobacco. This program, like many others that have been laid at the door of "the bureaucrats" came as much from farmers and their organizations as from anyone else. The "slaughter of the innocents"—those famous little pigs—is the most striking example of such misplaced "credit."<sup>7</sup>

<sup>5</sup> Domestic fire-cured consumption declined with the decreasing use of snuff, chewing tobacco, and Italian type cigars. Exports to continental Europe also decreased. Consumption of dark air-cured dropped two-thirds in the 1920-40 period.

<sup>6</sup> *Wallace's Farmer* for Jan. 9, 1925. Compare H. A. Barth, "Cooperation in the Blue Grass," 33 *Journal of Political Economy* 455-65, Aug., 1925; O. B. Jesness, "The Marketing of Tobacco," and "The Cooperative Marketing of Tobacco," Bulletins Number 287 and 288, Kentucky Experiment Station, Lexington, 1928; Jesness and J. W. Jones, "Membership Relations of Cooperative Associations," U.S.D.A., Circ. 407, in 1927. Ward W. Fetrow, "Cooperative Marketing of Agricultural Products," Farm Credit Administration, Cooperative Divisions, Bull. No. 3, 1936, pp. 79-87.

<sup>7</sup> President O'Neal, AFBF, had this to say in defense of Secretary Wallace and Chester C. Davis in 1935. "Neither of these acts (the Bankhead Cotton Control

Under the Kerr-Smith program, carry-overs were reduced. But after the Hoosac Mills decision (1936) erased the Agricultural Adjustment program from the statute books, penalties were removed from tobacco surpluses. Large supplies were again in prospect. The A.A.A. of 1938 provided for tobacco quotas, which were accepted for the 1938 crop by growers of flue-cured, burley, and the dark tobaccos.

Growers rejected marketing quotas in 1939, the first and only example of such adverse referenda under the triple-A program. Tremendous crops followed and coincided with drastically curtailed demand as the war broke out in Europe. Congress amended the A.A.A. of 1938 to provide for quotas to be announced for three successive crop years at once; these the growers overwhelmingly accepted in referenda.

*Nature of the program.* Under the A.A.A. of 1938 each type of tobacco is a separate commodity. The Secretary of Agriculture is required to proclaim a national marketing quota for any kind of tobacco for which he finds total supply to exceed the level defined in the Act. Such proclamation must be issued by December 1 and must be submitted to a referendum of growers of that type of tobacco within 30 days; if more than one-third of such growers who actually vote, reject quotas the proclamation is nullified. At the same time, all growers lose their claims to benefits under the A.A.A., including Commodity Credit Corporation loans.

National marketing quotas<sup>8</sup> can be proclaimed for any type of

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Act and the Kerr-Smith Tobacco Act) originated (in the U.S.D.A. or the A.A.A.). In fact, (the U.S.D.A. and the A.A.A.) entertained serious, grave doubts about the Bankhead Act. . . . Enactment by Congress of these measures must be placed directly on the determination of the farmers themselves, who were determined to make their collective action effective by increasing economic advantages for producers, and by increasing, at the same time, economic disadvantages for producers who refused cooperation in such programs." Hearings, House Committee on Agriculture, "To Amend the A.A.A.," 74th Cong., 1st Sess., Serial E, March, 1935, p. 298.

For the little pigs, see a statement of Earl C. Smith, President for twenty years of the Illinois Agricultural Association (the Farm Bureau), before the agricultural subcommittee of the House Committee on Appropriations, Hearings on 1942 bill, Part II, Feb. 11, 1941, at p. 438; Speaking of the first A.A.A., "For instance, it involved the killing of little pigs, and I happened to be the chairman of the committee that recommended that." Compare H. A. Wallace, speaking of the same little pigs: "That part of the program, which is a very temporary and crude affair, and which, by the way, originated with the producers themselves, the very thought of attempting it originated with them. . . ." House Committee on Agriculture, Hearings, Cattle as a Basic Commodity, Serial C., 73d. Cong., 2d Sess., Jan. 19, 1934, p. 80. Finally, compare Earl C. Smith, House Committee on Agriculture, "To Amend the A.A.A.," Serial E., 74th Cong., 1st Sess., March, 1935, pp. 228-42.

<sup>8</sup> National quotas are broken down among states according to state production

tobacco only if the total supply is in excess of the "reserve supply level." This level is 105 percent of a "normal supply." The "normal supply" consists of 275 percent of a normal year's domestic consumption plus 165 percent of a normal year's exports. In short, supply is balanced against prospective demand, and there is a reserve "to meet trade needs." If, however, demand increases much more rapidly than supply, the formula of the Act automatically ceases to apply. This is what happened during the war; therefore, Congress, as will be shown below, set aside the formula of the Act.

*Special treatment for tobacco.* In 1940, Congressman August H. Andresen (R. Minn.) said:

"Tobacco has had special treatment for the past 7 years, all through the farm legislation. The Representatives of the tobacco districts have written their own ticket and have always had preferential treatment to handle the problems concerning their industry."<sup>9</sup>

Congressman Flannagan (D., Va.), Chairman of the House Committee on Agriculture, has described his proposal that tobacco should have a special base in the A.A.A. of 1933 when the base period for tobacco was fixed at 1919 to 1929 instead of the characteristic 1909-14 period; Flannagan added that he was unsuccessful at the time in getting a different base for beef cattle since Marvin Jones held that further exceptions would destroy the parity principle.<sup>10</sup> Demand for tobacco in the 1920's, especially for ciga-

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for different types of tobacco during the preceding five-year period, with adjustments for trends, abnormal conditions, and small farms. State poundage quotas are converted to acreage allotments on the basis of five-year average yields (with adjustments). State allotments are distributed among cooperating farms by county and community committeemen of the Field Service Branch of the United States Department of Agriculture (formerly the Agricultural Adjustment Administration). Farmers receive farm acreage allotments on the basis of past tobacco acreage (harvested and diverted) adjusted for abnormal conditions; crop-rotation practices; the soil and other physical factors affecting the production of tobacco; and land, labor, and equipment available for the production of tobacco. In fact, the history of production is almost the only determinant: this is the historical base. Small farms have been favored by legislative directions for increased allotments. Up to 5 percent of the national quota may be used to provide quotas for new farms, i.e., those which have not grown tobacco in the preceding five years. A cooperator is eligible for Agricultural Conservation Payments, perhaps for parity payments (depending on Congressional appropriations and on the relative claims for these of other basic crops), and for Commodity Credit Corporation loans. These loans-without-recourse are, in effect, governmental price supports; they constitute the most attractive part of the program for tobacco and other crops. In the A.A.A. of 1938 such loans were provided at from 52 to 75 percent of parity; in 1941 the loan rate was lifted to 85 percent of parity; in 1942 it was increased to 90 percent.

<sup>9</sup> 86 *Cong. Record* 13749.

<sup>10</sup> Speech to the American Farm Bureau Federation annual convention, Dec. 18, 1945, Chicago.

rette tobacco, had produced such price structures that the use of the 1909-14 base even in 1933 would have found tobacco well above "parity."<sup>11</sup> In 1940, the base for burley and flue-cured was further advanced to 1934-38, reflecting the increased use of these tobaccos in cigarettes.

### *Legislation During the War*

So much for background. What has happened in the war years to set forth tobacco as a specialized program which may give a clue to the general trend of agricultural regulation?

*First*, when quota provisions of the A.A.A. of 1938 became inapplicable, Congress set aside the formula of that Act for burley and flue-cured tobacco.

*Second*, penalties for marketing tobacco in excess of quotas, already increased in 1939, are further raised in 1946. The significance of this move lies in its manifestation of the ability of regulatory programs to be tightened up so as to make more certain their controlling effects upon the pattern of production. Larger penalties, it may be stated parenthetically, are reinforced by the increasing efficiency of present-day administration.<sup>12</sup>

*Third*, further exceptions have been made in favor of small producers; but upon examination these exceptions are seen to be palliative at best—at worst contributory to the general acceptance of a stratified society produced by Congressional fiat.

*Fourth*, probably as significant as any of the foregoing is the legislation of July, 1945, to break away from the parity principle in order to protect burley growers from possible encroachments by growers of the dark tobaccos.

Finally, *fifth*, it becomes clear that tobacco legislation is compassed by a relatively small group of "tobacco Representatives" in Congress. On the legislation to be described, roll call votes are lacking; no hearings have been held; committee consideration has been scant; discussion on the floor, brief. In short, Congressional *forms* are being used to pass legislation intimately regulating one of our major crops, in the production of which some 750,000 farmers and their families are involved; but the *substance* of Congressional consideration in any sense as a deliberative body is absent. The procedure being what it is, the problem of how tobacco policy can be

<sup>11</sup> Rowe, *op. cit.*, p. 17.

<sup>12</sup> See, for example, Paul H. Appleby, *Big Democracy*, Knopf, 1945.



related to policy for other commodities has found no answer.<sup>13</sup>

These five points will be seen to emerge from the discussion of legislation which follows.

#### 1943

In January of 1943, the issues arose concerning marketing quotas, hence the production control program, for tobacco. As noted, when the Secretary of Agriculture employed the formula of the 1938 Act to ascertain the supply-demand balance, he found himself stopped from announcing quotas for tobacco. At this point, conflicting purposes emerged, some calling for continuation of quotas in the old terms, others calling for relaxation of the then-current allotments.

In favor of relaxation were the following: *First*, small growers wanted larger quotas. 275,000 farms have burley allotments today; of these, 120,000 have quotas of one acre or less. The persons and the votes of these small farmers, politicians love. *Second*, these small growers needed more cash income; else they might migrate from farms and the nation would be deprived of an important contribution to the food supply—at least, it was so argued. Certainly of equal importance was the desire of the sociologists in Congress to keep these people on the farms, “where they belong,” where they live the good life and, quite incidentally, where they help to populate Congressional districts.

But cogent arguments and powerful forces were opposed to removal of quotas. *First*, tobacco growers with pre-war quotas of comfortable size were opposed both to allotment of new quotas and also to substantial liberalization of small quotas. *Second*, to remove quotas might have allocated productive acres and other resources, such as fertilizer,<sup>14</sup> to tobacco, hence away from the “war food

<sup>13</sup> H. B. Rowe points out that “Tobacco is produced on a considerable number of specialized farms where it constitutes the principal source of income.” But he adds: “It is also grown as a cash crop in combination with various enterprises on other types of farms.” He compares two maps, one showing the heaviest concentrations of tobacco production, the other showing the various types-of-farming areas in these tobacco regions as derived from F. F. Elliott’s well-known work on the Census of 1930. Rowe says: “Such a comparison . . . reveals that a very large portion of this production is in areas where some other type of farming is of equal or greater importance than specialized tobacco production.” He then proceeds to give details. *Op. cit.*, pp. 28, 36-39.

In short, even on tobacco farms themselves there is need for agricultural policy which considers the farm as a unit that functions economically through combinations of different enterprises.

<sup>14</sup> “More than half of the tobacco crop is grown on light soils requiring expensive fertilization. . . .” Bureau of Plant Industry, Tobacco Investigations, Hearings, House Committee on Appropriations, sub-committee on agriculture, 1942 bill, Jan., 1941, p. 485. Compare Rowe, *op. cit.*, p. 40, “Soils and Men,” *Yearbook*,

crops." Therefore, there appeared an argument for continuing quotas "in the national interest." *Third*, burley producers and their representatives were haunted by the fear that, if quotas were removed, growers of dark tobaccos would invade the burley field.

These are examples of those familiar conflicting ends that it is the politician's business to resolve. The conflicts have continued to arise each year. Early in 1943, Congress passed a bill which Flannagan asserted had the "approval of every burley tobacco Representative on the floor." The bill was an answer to a proposal, which Flannagan claimed to be demagogically inspired by warehousemen, to increase all quotas by .8 acre or 20 percent, whichever was higher. Congress actually raised all quotas to .5 acre or by 10 percent for quotas larger than half an acre. Representative Martin (R., Mass.) accepted the bill as helpful to small growers. Congressman Jennings (R., Tenn.) emphasized the same point; many small growers were in his district (second, Tennessee). He also argued that increased quotas would permit farmers to stay on the farms and, in addition to the tobacco, to grow more food.<sup>15</sup>

In July, 1943, another bill passed Congress permitting the Secretary of Agriculture to declare marketing quotas on burley and flue-cured for 1944.

Flannagan told the House:

"Due to the uncertainty of our export trade in tobacco and the labor situation, it is purely a guess with the Secretary, and he does not know whether he will be able to make the determination with any degree of accuracy. We are anxious to see that the quotas are retained for the crop year 1944."<sup>16</sup>

Congressman Jennings said:

"We do not want to have the growers of tobacco subjected to the uncertainty that might grow out of the conditions with which they are confronted, and this measure *simply freezes the industry as it now is*" (italics supplied).

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U.S.D.A., 1938, pp. 539, 772-73, and Charles E. Kellogg, *The Soils That Support Us*. Macmillan, 1941, p. 230.

<sup>15</sup> 89 *Cong. Record* 2301; Flannagan criticized articles in the Bristol (Va.) *Herald Courier* which advocated larger increases for small growers. Attributing the articles to the inspiration of warehousemen who would profit from surplus conditions in burley, he said that those increases would increase burley acreage from 382,000 to 592,000 acres. *Ibid.*, Appendix, p. 195; Jan. 18, 1943.

<sup>16</sup> A quotation from the bill under discussion which became legislation will show how clear the departure was from the A.A.A. of 1938:

"Resolved by the Senate and House . . . That notwithstanding the provisions of section 312 (a) of the . . . Act of 1938 . . . relating to the finding of the total supply of tobacco, the reserve supply level and the amount of the national marketing quota . . . national marketing quotas for burley and flue-cured tobacco for the marketing year 1944-45 shall be proclaimed . . ." Public Law 118, 78th Congress.

Flannagan agreed with this statement of the object of the bill. Jennings argued that the bill would increase food supplies and keep labor on the farms. The Committee on Agriculture, said Congressman Hope, believed that the legislation would help the war food production program.<sup>17</sup>

In October, 1943, the War Food Administration announced the quotas made mandatory by this legislation; subsequent referenda among farmers were overwhelmingly favorable. The New York *Times* commented:

"Privately, WFA officials say that some growers who have profited under the crop-restriction program which went into effect in 1934, did not wish to see the plan abandoned. If controls were lifted, they foresaw a tremendous expansion in flue-cured and burley production during the war."<sup>18</sup>

The *Times* also reported that Congressman Doughton (Dem., N.C.) had objected strenuously to the disparagement of small growers in the program.

#### 1944

Doughton had his say a few months later (February 23, 1944) when Congress again enacted to raise small burley tobacco allotments. Doughton asked if the bill was simply to aid small farmers. Flannagan said that it was. Doughton pointed out that many of his growers were small and this increase in allotments would help them take care of their families.<sup>19</sup> Flannagan agreed with Doughton's interest in the small farmer, adding that this legislation would help him more than any other step Congress had ever taken. Perhaps Doughton's mixed emotions can best be shown by his question:

"This does not harm anyone and does not increase production in any amount over that sufficient to meet the demands?"

He was reassured on both points. The bill would affect about a third of the Burley producers; *it would increase acreage three percent*.<sup>20</sup>

<sup>17</sup> On the assurance that the increased food supply was an object, Congressman Martin refused to object; the bill passed under unanimous consent. 89 *Cong. Record* 6938-9.

<sup>18</sup> Oct. 12, 1943.

<sup>19</sup> Doughton's interest in burley is probably explained by the number of burley growers in his district (9th, N. C.) although North Carolina had only 2 percent of total burley production in 1939.

<sup>20</sup> 90 *Cong. Record*, 1974-75. The bill passed under unanimous consent in the Senate after Connecticut cigar-leaf growers had been assured that it applied only to burley.

*Three percent!* This is the measure of the palliative character of such "liberalization" of allotments. At the same time, the writer believes that the argument that the legislation would serve to increase food production is absurd. How much do the small farms concerned contribute to commercial food production? The answer is indicated by the terms of the quota increase: up to one acre of tobacco or 25 percent of the cropland, whichever is smaller!

#### 1945

In 1945, Congress passed a very interesting act for tobacco. The original purpose was to permit growers of dark tobaccos—fire-cured and dark air-cured, to vote on marketing quotas. After the House passed the resolution, growers of flue-cured, burley, fire-cured, and dark air-cured met to consider the general tobacco situation. Among other things, they reached unanimous agreement that legislation should provide a "fairer price relationship" between the dark tobaccos and burley. Therefore, the Senate amended the resolution to provide that *if growers of dark tobaccos accepted marketing quotas*, the Commodity Credit Corporation would be directed to raise the loan rates on fire-cured to 75 percent of the burley parity and on dark air-cured to two-thirds of burley parity. At the time (July, 1945) burley parity was 32 cents a pound. Burley was supported under acts of Congress at 90 percent of this figure or 29 cents. Fire-cured parity was about 15 cents; 90 percent of this would be 13.5 cents. But by this legislation, 75 percent of burley parity would be forthcoming, or 21.5 cents per pound!<sup>21</sup>

From the debate on this legislation are taken the head-quotations of this article. The gist of the measure seems to be to protect burley growers, whose profitable fields might be entered by dark tobacco producers.<sup>22</sup> Congressman Ellis (West Virginia) noted that the legislation was necessary to prevent chaotic conditions. His district produced burley, not dark tobacco, but "... there is always a

<sup>21</sup> See the critical Washington *Post* editorial, July 29, 1945. The *Post* noted the plausible arguments; that dark tobaccos were prejudiced by poor base years; that their production needed encouragement in order to bid for the export market, etc. The *Post* was opposed to the legislation because it broke the parity principle, throwing open the door for proponents of other crops in favor of special loan rates. At the same time, by discrediting the parity principle, it opened the field for substitute-proposals such as Senator Wiley's cost-of-production bill.

<sup>22</sup> Burley growers have long been critical of the tendency of burley production to migrate from Kentucky and Tennessee, its "natural home." See F. C. Taylor, Hearings, House Committee on Agriculture, the Kerr Bill, 73d Cong., 2d Sess., Serial O, pp. 54-55, April, 1934.

tendency on the part of growers in some areas to switch from one type to another as prices are up or down; this throws the relationship of production out of balance."<sup>23</sup>

On this point came Clifford Hope's attack, which illustrates the direction of the farm program.<sup>24</sup> Hope pointed out that tobacco "has been the subject of special legislation all the way through." Describing the considerable increase in tobacco-growers' incomes, he declared:

"They already have what amounts to a monopoly . . . . If you do not have a quota you cannot produce unless you pay a very heavy penalty. It is not only a closed shop proposition but it is a closed union with a closed shop."

When Flannagan demurred, mentioning the five percent of state acreage allotments which is available for new growers, Hope answered by stating the competitive position between burley and the dark tobaccos. This bill, he declared, was to keep competitors from entering the burley market.

#### 1946

This year Congress is again in process of setting aside the formula of the 1938 Act so that quotas may be applied. In December, 1945, the burley price was at the O.P.A. ceilings and prospects seemed excellent.<sup>25</sup> But between the opening of the market in December and the middle of January, burley prices fell, as already noted, so that substantial amounts were being placed under C.C.C. loans at 90 percent of parity. According to the findings made in December, 1945, the Secretary of Agriculture would have been required to name a marketing quota somewhat in excess of the 1945 level for burley. The House of Representatives, however, has passed a bill permitting quotas to be reduced twenty percent—except for those quotas which are one acre or less, and which may be lowered only ten percent.<sup>26</sup>

The House Report on the bill states:

"The burden on larger farms in making contemplated adjustments is

<sup>23</sup> 91 *Cong. Rec.* (House) 7837, 79th Cong., 1st Sess. Congressman Hope's remarks are printed in *ibid.*, Appendix 3814-16, July 19, 1945.

<sup>24</sup> 91 *Cong. Rec.* Appendix 3814-16; July 19, 1945.

<sup>25</sup> The December, 1945, *Agricultural Situation*, published by B.A.E., U.S.D.A., declared: "Stocks of flue-cured and burley, the major cigarette types, are above most pre-war years, but they, as well as stocks of Maryland, dark, and cigar tobacco are low in relation to current and prospective demand" p. 7.

<sup>26</sup> House Report, 1476, 79th Cong., 2d Sess., to accompany H.R. 5135.

heavier to the extent that it is not shared by the smaller farms, but this protection for the smaller farms is consistent with policies established under previous legislation."

Again there is the palliative which clearly does little to modify the regressive effects of the program. For as the House Report indicates, some 43 percent of the burley farmers with bases of 1 acre or less are now confined to less than 20 percent of the acreage. Even if these small farmers were cut only ten percent and the larger farms were cut the full twenty percent, *the result would increase the small farmers' share to only a little more than 21 percent!*

Moreover, the penalty has been increased. Flat rates, e.g., 10 cents a pound on burley and flue-cured, have been fixed since 1939 for tobacco marketed from excess acreage. When fixed, these rates constituted approximately 50 percent of the average market price. Subsequently, prices have risen so that these penalties are only about one-quarter of the market price. Therefore, the 1946 legislation provides for penalties to equal 50 percent of the market price for each kind of tobacco *in the immediately preceding marketing year*.<sup>27</sup>

#### *What Does it Mean?*

This question cannot be answered with certainty, but tobacco points up the rich possibilities of regulatory programs. Tobacco has been given special consideration, not only in departing from the customary base for other farm products, but also in the 1945 legislation which destroys the parity principle in order to protect burley growers from shifts of other producers out of dark tobacco to burley. Penalties have been sharply increased. In short, if the master plan that Congressmen have established for tobacco proves unenforceable, it will not be because of any lack of sanctions.

✓ Let us look at the small growers—the 43 percent of burley growers with allotments of one acre or less. Congress has attempted to alleviate their lot; but the effects, as noted, have been paltry. If average yield for such growers is 900 pounds per acre (a compromise between higher war yields and lower ones for 1932–41 period), and if burley brings 30 cents a pound, the gross income is \$270 for those of the 120,000 small growers with allotments of one full acre.

<sup>27</sup> For example, let us apply the situation in 1944. The farm price for burley was 44 cents; the parity price, 31.7 cents. If prices should fall to the support level, 90 percent of parity, the consequent price would be 28.5 cents. But the penalty would be half of 44, or 22, cents—or 77 percent of the market price.



But tobacco is an expensive and precarious crop;<sup>28</sup> by the time the tobacco money is reduced by out-of-pocket expenses, the farmer will find it necessary greatly to augment his income from other sources if his family is going to enjoy the "American way of life." He cannot get this extra income from tobacco; the same legislation that gives him a little piece of the monopoly also stoutly resists his efforts to increase his allotment.

The writer has found no evidence that Congressmen have considered this all-important question as to the way in which burley production on small farms under different circumstances fits into typical combinations of enterprises that produce satisfactory incomes. Inquiry here might show many tobacco farms to be too small to produce satisfactory incomes.<sup>29</sup> Programs should perhaps be designed to increase farm sizes over the years, in short, to stimulate out-migration from farms that are too small. To thoughts like these, idealists in Congress will raise sharp objections. To suggest that any area is over-populated is to stigmatize "God's own country" to the "representative man" therein.<sup>30</sup> So the compromise program is adopted: to bolster prices, then to control production, then to assign production quotas on the historical base, then to spread the quotas around a little for small farmers, and finally to freeze the pattern to the best of modern government's great ability.<sup>31</sup>

To be sure, Congressmen may point to the growers' referenda which, with one exception, have heavily favored quotas.<sup>32</sup> Three

<sup>28</sup> See H. A. Barth, *op. cit.*, for some cost of production figures; compare the report on Tobacco Investigations, *op. cit.*, for information as to the precarious nature of tobacco. Here it is stated that: "At present [1941] the average tobacco farmer can only occasionally secure a fair margin of profit on his crop because he is unable consistently to produce at reasonable cost a satisfactory output per acre of the better grades of leaf, quality rather than total yield being the principal factor. *This is an especially important matter under a program of controlled production.* The problem to be solved is complex because of the many factors which influence quality." P. 485, italics supplied.

These remarks strongly suggest that the small farmers discussed in the text are very favorably pictured there.

<sup>29</sup> Compare the map in Rowe, *op. cit.*, p. 37 with Bureau of Agricultural Economics Map, Land Use Adjustment Areas, May, 1940: the tobacco areas concerned include many areas in which "major farm reorganization" is indicated.

<sup>30</sup> Compare John D. Black, *Food Enough*, (1943), pp. 88 ff.

<sup>31</sup> For the earlier A.A.A., see the discussion of the dangers of inflexibility in such control programs in Rowe, *op. cit.*, pp. 236-39.

<sup>32</sup> In 1938, some 177,000 burley producers voted, 87.1 percent favored quotas; in 1939, some 217,000 voted, 59.4 percent—less than the necessary two-thirds—favored quotas. In 1940, 145,000 voted, of whom 76.5 percent favored quotas for three years. Unlike referenda on fluid milk agreements under the Agricultural Marketing Agreement Act of 1937, in which cooperatives vote their members, these are all individual votes. The high participation is a tribute to the ability of

criticisms do much to nullify the effect of this answer. First, and most important, the grower understands when he votes what the alternatives are; that is, if he rejects the quota he also renounces the Agricultural Adjustment Administration benefits, especially the Commodity Credit Corporation loans.<sup>33</sup> Second, the A.A.A. has a streamlined organization reaching down into communities to electioneer for favorable votes. Third, growers eligible to vote are already "in the program," by definition: they have historical bases. They are voting themselves the monopolies that Congressman Hope criticized. Even if their own share of the monopoly is pitifully small, it is a program for their own farms. These are the "hills of home." Like many other people, tobacco growers will bear familiar evils rather than escape to foreign dangers yet unknown.

The writer sees no grounds for criticizing Congressmen who use such psychological tendencies as these to promote the values decreed by their own sociological conceptions.<sup>34</sup> Such Congressmen have sought to serve a number of ends, as indicated, among them these: to make tobacco growing profitable, to ease the lot of small farmers, and to keep the farmers on the farms. It is curious that the result has been a program framed by representative Americans that freezes an economic situation in a way quite contrary to American ideals of freedom of opportunity.

This direction of the tobacco program is partly attributable to faults in our political machinery that are, in a profound sense, procedural. The fiction of Congressional consideration is preserved to cover up the fact of splintered legislative processes. As Congressmen themselves assert, a handful of tobacco Representatives have made tobacco policy. They have done so, largely without benefit of hearings, and through exploitation as skilled parliamentarians of unanimous consent procedure in Congress.<sup>35</sup>

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the A.A.A. to "get out the vote." Some break-downs are available by states, but the writer knows of no break-down to show participation and attitudes by types and sizes of farms. See Reports of the Administrator of the Agricultural Adjustment Administration for 1938-39 and 1941.

<sup>33</sup> See above, pp. 930-32.

<sup>34</sup> The tobacco program does not fall neatly into the hands of critics of "Southern reactionaries" in Congress. As these pages show, Congressman Flannagan has played the most important role in legislating for tobacco. His voting record has been an extremely liberal one.

<sup>35</sup> In the debate on the 1945 bill which bought off the dark tobacco growers, Mr. Hope pointed out that the amendment was not considered at all by the House Committee on Agriculture and that it received only perfunctory consideration in

The meaning of these last observations requires all the emphasis that can be given them. If the argument in this paper is sound, it is absolutely essential to understand *that the kind of policy we have is intimately related to the way it is made*. That the farm program is being splintered into separate, water-tight programs for commodities—programs of increasingly inflexible nature—is here illustrated with tobacco. The result tallies perfectly with the analysis of how policy is formed—an analysis which shows the crucial role of a little group of tobacco Representatives in Congress.

But tobacco merely stands out as part of the general tendency. In emergency periods, we turn to executive leadership; but very soon thereafter, for agricultural policy, at least, the Congress tends to take over detailed policy direction, with the results as noted in tobacco. Witness the Agricultural Adjustment Act of 1933, followed by special acts for cotton, tobacco, and potatoes in 1934. Witness another emergency in 1936-37 which produced the A.A.A. of 1938—but by 1941, with the Steagall Amendment and the legislation elevating Commodity Credit Corporation loan rates to 85 percent of parity, Congress was again firmly in the driver's seat.

People interested in agricultural policy had better concern themselves with the current debates over the organization of Congress.

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the Senate. In 1940, the bill to change the flue-cured and burley bases to 1934-38 was criticized by Congressmen Andresen, Carlson of Kansas, and others. The bill had not been subject to Agricultural Committee hearings. The chairman of that committee had circularized members, round-robin fashion, to get a vote to bring the bill to the floor. There, Members were asked to vote on a bill of which they did not have copies. 86 *Cong. Rec.* 13,473 ff. Oct. 9, 1940.

*Appendix: Burley and Flue-Cured Tobacco, Production, Price,  
Disappearance, and Acreage under Control Program*

TABLE 1. FLUE-CURED TOBACCO<sup>1</sup>

	Parity Price (¢ lb.)	C.C.C. Loan Rate (¢ lb.)	Farm Price (per lb.)	Har- vested Acreage (000's)	Produc- tion (mil- lions lbs.)	Total Supply (mil- lions lbs.)	Disap- pearance (mil- lions lbs.)	C.C.C. Loan or Purchase (millions lbs.)
1933			15.3		733	1409	646	
34	23.1		27.3	684	556	1319	567	
35	22.4		20.0	874	811	1563	692	
36	23.8		22.2	881	682	1554	670	
37	23.4		23.	989	866	1749	795	
38	22.2	16.6	22.2	912	785	1740	793	
39	22.4	16.8	14.9	1287	1168	2115	705	173 (p.)
1940	22.7	17.	16.4	741	759	2169	576	201 (l. & p.)
41	26.3	22.3	28.1	717	649	2242	782	120 (p.)
42	29.3	24.9	38.4	792	811	2271	877	218 (p.)
43	31.6	28.4	40.2	844	788	2169		182 (p.)
44	32.7	29.4	42.4		1089	2278		
45			42.5		1281	2327		

<sup>1</sup> Sources: *Agricultural Statistics*, 1942, Tables 205, 206, pp. 160-61; Table 800 p. 730; the same, 1944, Tables 140, 143, 600, pp. 110, 115, 492; see *Agricultural Outlook Chart Book*, 1944 & 1946, pp. 47-48 for parity prices; see *Agricultural Statistics*, various years, for acreage figures. See also *Agricultural Prices B.A.E.*, U.S.D.A, Dec. 29, 1945. The column, C.C.C. Loan Rates, is derived by calculating 75% of parity for 1938, 1939, and 1940; 85% for 1941 and 1942; and 90% for 1943 and 1944.

TABLE 2. BURLEY TOBACCO<sup>1</sup>

	Parity Price (¢ lb.)	C.C.C. Loan Rate (¢ lb.)	Farm Price (per lb.)	Har- vested Acreage (000's)	Produc- tion (mil- lions lbs.)	Total Supply (mil- lions lbs.)	Disap- pearance (mil- lions lbs.)	C.C.C. Loan or Purchase (millions lbs.)
1933			10.5		377.5	1097.8	277.5	
34	22.4		16.9	303	252.2	1072.5	302.6	
35	21.8		19.1	278	220.9	990.8	309.1	
36	23.3		35.7	308	219.6	901.3	329.5	
37	22.2		20.1	443	402.4	974.2	313.5	
38	21.3	15.9	19.0	406	339.4	1000.1	316.	
39	21.8	16.3	17.3	432	396.3	1080.4	318.1	
1940	22.4	16.7	16.2	360	375.3	1137.6	339.5	23.3 (l.)
41	26.4	22.4	29.3	343	336.8	1136.2	379.6	
42	28.9	24.5	41.8	350	343.2	1098.5	412.8	
43	31.1	27.9	45.6		371.3	1061.3		
44	31.7	28.5	44.		591.8	1243.		
45	33.4	30.			576.3	1334.		

<sup>1</sup> Source: See Source for flue-cured.

### *Comments*

1. The control over acreage is striking for both tobaccos. Burley acreage was cut back in 1935; acreage of both increased sharply in the years of no control: 1936, 1937, and 1939. Both were cut sharply

back in 1940 when growers again voted for quotas. Clearly this program is worth something to insiders; their monopoly position rests on the control program which produces acreage allotments that are assigned to individuals almost entirely on their history of production—the historical base. The actual production figures show, however, that the monopoly position is less easy to protect than the acreage figures would indicate. See point 4 below.

2. Are the Commodity Credit Corporation loans as important for tobacco as the text indicates? In the past, such loans were less significant for tobacco than the acreage controls were. But in flue-cured tobacco, the C.C.C. operated heavily from 1939 through 1943. Although the table does not show it, the C.C.C. supported burley in December, 1945. *There is, then, enough evidence to support the assertion that the program rests heavily on the C.C.C. loans.* Note the effect of the increase in loan rates in 1941 and 1942. The availability of such loans if growers accept quotas coupled with the sacrifice of loans if quotas are rejected provides powerful motivation for favorable referenda.

3. The tables also show that the years 1934–38 produced better prices for both burley and flue-cured. The average flue-cured price in these years was 22.9 cents per pound; for burley, the figure was 22.2 cents. Thus these years, 1934–38, could be advantageously substituted in 1940 for the 1919–29 base period. Consequently, parity prices of both types rose sharply in 1941 over 1940. Favorable prices in 1934–38 were probably due in part at least to the control program in effect in 1934, 1935, and 1938. Hence an interesting process emerges: control programs that tend to raise prices are introduced; prices rise; then the new prices are made into a new base for the calculation of support prices.

4. Monopolistic positions of insiders seem less secure after a glance at the “total supply,” “production,” and “disappearance” columns. Total supply rises through the entire period for both tobaccos. In the long run, it would seem that the program would have to cause production to disappear. In burley, it is true, five of the ten years in which one can compare production and disappearance, the latter exceeds the former. But the reverse was true from 1937 through 1940. In only four of the ten years does “disappearance” exceed “production” for flue-cured tobacco.

This tendency for supplies to pile up helps one understand the accompanying tendency for controls to be tightened through the introduction of more drastic penalties, as was done in 1941 and 1946.

## CAN PRICES ALLOCATE RESOURCES IN AMERICAN AGRICULTURE?\*

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MUCH discussion on agricultural policies revolves around the use of price programs as a major tool for inducing a proper allocation of resources within agriculture.<sup>1</sup> The theoretical basis for this use of prices stems from a postulate, coupled with two assumptions.

The postulate is that, under conditions of pure or approximately pure competition, and within the limits of consumer purchasing power, each resource is *properly* allocated when it is used in such an amount as will bring forth products in such kinds and amounts as will maximize both consumer satisfactions and profits to the farmer. In price terms this is accomplished when each resource is used in such amount with respect to any product that the value of marginal product is equal to the price which buyers of the product are willing to pay. Along with this postulate it is assumed that the dominant drive of farmers is for maximum profits, not in the sentimental sense that everyone wants all he can get but in the methodological sense of holding the inputs and outputs within the limits of the greatest possible net revenue through bargaining over the price to be paid for legal control over these inputs and outputs. Second, it is assumed that all farmers alike either pay money for all inputs or inpute opportunity costs for the use of any input.

Throughout this essay the correctness of the definition of proper resource allocation, which is implicit in the above postulate,<sup>2</sup> is

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<sup>1</sup> That prices alone cannot properly allocate resources between agriculture and the rest of the economy appears to be gaining increased recognition. However, there is still a widespread belief that prices are capable of inducing a proper movement of resources from farm to farm and from enterprise to enterprise within a farm.

<sup>2</sup> Explicitly the postulate means that agricultural resources are properly allocated when, and only when, the products of the use of such resources are of those kinds and in those amounts that consumers want as indicated by the prices that prevail in the market. In these terms proper re-allocation of resources from time to time becomes more than a mere shifting of resources from the production of one commodity to another. That is to say, an increase in production of a commodity, whose price has increased relative to other commodity prices, and a decrease in



presupposed. But even so, it is the purpose to indicate that price can scarcely be regarded as a significantly effective tool for achieving a proper allocation of resources in American agriculture for two main reasons. First, contrary to the above assumptions, the dominant drive of most farmers is to press output to the limit of physical capacity in the hope of maximizing profits rather than striving to hold production within the limits of maximum profits through bargaining over the price of inputs and outputs. Second, not all farmers have similar structures of operational costs.

In other words, the allocative efficacy of prices breaks down because significant groups of farms are fundamentally unlike with respect to both their dominant operational objective and their operational costs.

# I

These differences spring from the nature and the relationship of the personal economic functions (and hence of the persons performing them) in the firm.

A firm involves three personal functions. Two are workmanlike—labor and technological management; the third is business. Labor consists primarily in the muscular force and manual dexterity involved in manipulating materials. Technological management, in addition to the professional intelligence and skills involved in the discovery and design of new processes, techniques and tools of industry, consists primarily in decision-making on the ways in which resources may be combined so as to get the largest possible output per unit of resource input. It is in these two capacities that men *make* goods, *judge* what things will do under given mechanical conditions, and *know*, in any scientific sense of the word, consumer needs in relation to the available resources. But it is not for men in these capacities, at least in our present society, to decide what and how much of each good and service shall be brought forth by the “agents of production” nor how much of each corresponding resource shall be permitted to enter into productive employment. In an “enterprise” economy, this is the job of business.

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the production of a commodity, whose price has decreased relative to other commodity prices, do not comprise conclusive evidence that prices bring about a proper allocation of resources. For when total demand exceeds total agricultural production (as during the period of World War II), consumers become less selective in their purchase of individual commodities and will consume all that is produced even though they do not get what they want.

In broadest terms, business is a process of profit accumulation through bargaining for, and the exercise of, legal control over what men may do with commodities. Where the commodity traffic is the inputs and outputs of the industrial or technological process, business may be defined as (1) making decisions, on the basis of the money value of commodities, as to the amount of each resource which, when converted into and sold as new products at given prices, will maximize profits, (2) implementing these decisions through purchasing as cheaply as feasible the legal control over what may be done with resources and placing them in charge of technological management for conversion into the largest possible output per resource input, (3) and then realizing profits through selling these new products as dearly as feasible.<sup>3,4</sup>

The business and technological functions differ in kind rather than in degree. Each involves a different interest and objective with no *a priori* assurance that the one is inherently stronger than the other and therefore will automatically gain the *upper hand* in a given firm.

First, business is primarily a process of bargaining for legal control over commodities. In this process the fashioning of materials into usable goods is absent. The technological functions are a

<sup>3</sup> Actually, the distinction between business and technological functions stems from the two-sided nature of economic activity. On the one hand, it is a goal-fixing or valuation process of deciding how much of each resource is to be made available to, and hence how much of each good and service shall emerge from, the production process. In an enterprise (private ownership) system, this phase of the economic process becomes a part of the business or bargaining (valuation) process. On the other hand, economic conduct is a workmanlike process of actually converting resources into usable articles. More precisely it is an interaction between men and nature in which the impersonal materials are combined into usable goods by means of mental and manual effort. What goes into this process at any step are so many man-hours of mental and manual effort over against so many units of materials; what comes out are so many units of usable goods and services. The rate at which resources thus pass into usable goods is the measure of man's industrial efficiency—the degree of his mastery of nature—his power to overcome its resistance. The technological functions have their being within this workmanlike process of turning materials into usable goods.

<sup>4</sup> As usually stated a firm involves only two personal functions—labor and entrepreneurship. But when thus used the term entrepreneurship mixes two distinct functions (activities)—business and technological management—so that it is impossible to recognize the common-sense difference between a "business man" and an "engineer." More specifically, by this mixture of functions it becomes impossible to distinguish between a person whose dominant interest is technological—i.e., making more goods more efficiently—and one whose main interest is business—i.e., acquiring ownership claims to wealth. In other words, the usual meaning of entrepreneurship leads to the absurd notion that, on the one hand, the dominant drive of a good engineer or workman is to think and behave like a business man and, on the other hand, a good business man is one who habitually looks at things like a good engineer.

process of turning materials into usable goods. In this process bargaining is absent. Second, both technological management and business involve decision-making but the decisions are not economic in the same sense. For decisions as to ways in which resources may be combined into the most output per unit of input are obviously of a different kind from decisions on the amount of each good and corresponding resource which, in terms of money, will maximize profits. Third, and perhaps most important for our purposes, both business and the technological functions foster a certain frame of mind (intelligence and motivation); but the frame of mind so fostered is different in each case. For, in being carried out under the unalterable rules of nature, the technological employments inculcate insight and judgment as to what men, machines, and raw materials can and will do under given mechanical conditions. When well developed, such intelligence makes a competent engineer or mechanic—a good workman. But being a process of making profits through bargaining for, and the exercise of legal command over, what men may do with commodities, the kind of intelligence fostered by business activity is an insight and judgment as to what men will do under pecuniary pressures. When well developed, such intelligence marks a shrewd salesman, investor or promotor—accomplished in pecuniary accountancy and adept in contests of personal shrewdness and personal advantage.

Also, since every function or activity includes an inherent drive (tendency, motivation, interest, will, purpose, or whatever else one may call it) towards its appropriate objective, both the technological and business activities inculcate certain motivations, but the motivation so fostered in each case is different. Being a tendency to “go on indefinitely”<sup>5</sup> accelerating the rate at which men are able to convert resources into given kinds of output, the drive of the technological functions is for pressing output to the limit of mechanical capacity,<sup>6</sup> regardless of their relative scarcities or ownership. But being a tendency to maximize profits (through ap-

<sup>5</sup> John R. Commons, *Institutional Economics*, pp. 256, 285.

<sup>6</sup> Such is the nature of the drive regardless of whether the function in question be labor or technological management, though the form of the drive differs somewhat in each instance. In case of the labor function, the drive is for maximizing output per man even if at the expense of the productivity of other resources as when, for example, output is increased per man through more extensive farming or soil depletion or waste of machinery by requiring such resources to lie idle at times so that one may do a piece of work more quickly and easily. In case of technological management the inherent drive is for maximizing output per unit of all resources alike.

propriate purchase and sale of legal control over commodities) the inherent drive of business is for holding the inputs and outputs of technological or workmanlike activities within the limits of maximum profits (i.e., the limits of the most favorable bargaining opportunities).

But the most profitable limits for a firm may not be the same as the limits of mechanical possibilities, even under conditions of pure competition. For example, in terms of mechanical possibilities 600 pounds of butterfat from a cow or 100 bushels of corn per acre may be technologically most efficient though the most profitable rate of production may be much lower. In which case it is the function and interest of men in their business capacity to direct technological management to use just the amount of each resource that will hold the output to the lower level; whereas, it is the function and interest of men in their technological capacities to bring forth the higher level of output.

There is, thus, no natural harmony of aims between the inherent drive of men in their business capacity and in their capacity as technological agents. Which *kind* of man gets the upper hand in a given firm becomes of crucial importance for the allocative efficacy of prices. For this role of prices presupposes farmers in whom the business frame of mind has completely subordinated the technological frame of mind. There is no a priori basis, however, for being sure which frame of mind (kind of man) gets the upper hand in a firm. Which comes out on top is a matter of environmental conditions.

The key element in this environmental set-up is the fact that two different relationships may exist among the three personal functions in a firm. First, labor, technological management, and business may be primarily united as elements in the occupation of the same individual or family, or they may be separated so that each primarily coincides with the occupation of a different individual or family. The first relationship may be identified as an "occupational unity of functions"; while the second may be called an "occupational separation of functions." Firms characterized primarily by the former are called domestic or family industries since the persons in such firms stand in a familial instead of a bargaining relation to each other. Firms characterized primarily by the latter are called larger-than-family establishments, and the persons fulfilling most (if not all) of the labor and technological management requirements of such firms enter or leave the firm on a bargaining basis.

The main burden of the discussion which follows is that the (resource) allocative efficacy of prices breaks down because (1) an occupational unity of functions, characteristic of most farms, (a) tends to supplant the truly business frame of mind with a workmanlike-livelihood frame of mind and also (b) gives rise to negligible variable costs; whereas (2) just the opposite is the case with an occupational separation of functions, characteristic of some farms.

## II

Whether profits are sought primarily through pressing output to physical limits or primarily through holding inputs and outputs within the limits of most favorable price bargains depends on whether the firm is guided by an individual with a workmanlike-livelihood or business frame of mind; and this in turn depends, in great measure, on the relationship among the personal agents in the firm.

In the first place, firms characterized by a separation of functions tend to develop enterprisers in whom there is no inner conflict of business and technological drives. For, on the one hand this separation divests the head of the firm of most of the technological functions and lodges them in non-family members. On the other hand it gathers into him the business responsibilities that are otherwise scattered among the various family members.

More important, this separation of functions introduces a new business step into the economic process. For it places a price bargain between (1) the enterpriser's drive for profit accumulation and (2) the entry of any unit of resource into productive employment, and thereby forces the enterpriser out of a workmanlike frame of mind and into the business question of what is the money value of each unit of prospective resource input as compared with the price of its prospective output. In this way the separation of functions gives larger scope to, and unremittingly calls for, a fuller and sharper attention to bargaining (business) matters. Since this is so for *any* level of production, it is not so much through the sheer size of business as it is through establishing a more *complete* routine of pecuniary exercises, *accompanied* by a relief from workmanlike exercises, that this separation of functions gives rise to a truly business frame of thought as the main guide to farm operations, and thereby enables prices to become an effective resource allocator.

But just the opposite holds for firms characterized by an occupational unity of functions. More important, under this condition, the

technological interests in pressing output to physical limits tends to coincide with, and therefore be reenforced by, the powerful quest for a better livelihood that inheres in everyone. The reasons for this lie in a chain of circumstances. The terminus of any economic function or interest and the livelihood drive is one and the same—physical goods and services. Fulfillment of one centers in producing goods and fulfillment of the other lies in consuming goods. But the separation of functions breaks apart the process of living from the process of producing the items used in living by placing a price bargain between (1) the impulse to *get* a better living and (2) the impulse to *make* a better living, i.e., do more work. For when the functions are separated, any immediate inclination one may have for getting a better living by plunging directly into the process of production is stopped short by the necessity of getting a price for his agreement to work. More important, since the livelihood which the workman actually gets is equivalent to the price he gets for his promise to work, the only method immediately at his command for improving his livelihood lies in business operations for getting the highest possible price for whatever may be delivered in terms of tangible performances.

But the like does not hold where farming (or any other industry) is carried on under an occupational unity of functions. For in this circumstance the impulse for a larger livelihood and the impulse to produce more goods are not split assunder by the necessity of making a price bargain as the basis of getting any work done. Accordingly, the drive for a better living and technological drive for output to physical capacity interfuse in the sense that the quest for a better livelihood directly shoots its force into the technological drive to press output to mechanical limits. No sooner is one in the attitude of consuming more than he thereby stimulates himself to produce more rather than to drive a bargain. To be sure, after the work is done and the finished crops are in hand, the livelihood quest is often completed only after the conversion of produce into cash. It is at this point that the farmer, under an occupational unity of functions, is primarily forced to become a business man and use whatever business devices are at his command for getting a "fair price" for his produce.

In terms, then, of the frames of mind which may come to prescribe what and how much may be done in the way of productive employment, the emergence of firms, characterized by an occupa-



tional separation of functions, appears to be essential for enabling prices to become effective resource allocators. For by sealing off both ends of productive processes with bargaining valves, this separation alone provides the mechanism (environment) which, on the one hand, is capable of stopping the livelihood impulse for getting more goods from throwing its full force into the technological interest for making more goods, and, on the other hand, creates a place for and brings into existence that truly business frame of mind whose special genius and function is to hold inputs and outputs of productive activities within the limits of maximum profits through bargaining over each input and output of these activities. Contrariwise, in not fully closing both ends of the production process with bargain valves, the only kind of mind that the occupational unity of functions can manufacture is a livelihood-workmanlike frame of thought and feeling, whose special genius and function is to see clearly that the only way to get the best possible living is to make every effort to press output to the bounds of mechanical possibilities. If after having produced all it can, the family then finds itself without a livelihood because prices are too low, this is not taken by the farmer as evidence that he is a poor business man.

### III

In addition to inculcating a technological-livelihood frame of mind, an occupational unity of functions also gives rise to negligible variable costs in comparison with fixed costs. By calling for output to mechanical limits, such a cost situation provides a condition that gives vent to the workmanlike-livelihood frame of mind. This is so regardless of whether costs are considered in terms of the firm as a whole (i.e., in terms of the movement of resources from farm to farm or from farm to non-farm establishments) or in terms of the movement of resources from enterprise to enterprise within a firm. That is to say, on farms characterized primarily by a unity of functions, the relationship among the personal agents gives rise to a frame of mind and a cost structure, neither of which is conducive to truly business methods of properly allocating resources in accordance with prices. Just the opposite, however, holds for firms characterized by an occupational separation of functions.<sup>7</sup>

<sup>7</sup> Implicitly, this situation means that the allocative efficacy of prices can scarcely be reached merely through educational programs. Rather it can be reached only through an evolutionary break-down of firms, characterized by an occupational unity of functions, and the emergence of firms characterized by a separation of

The effect of cost structure and frame of mind upon resource allocation may be first considered for the farm as a whole. As a first step in this consideration, it may be noted that farms, characterized by a unity of functions, approach identity with the ideal case in which all costs in a given year are fixed costs. For it is evident, first, that the unity of functions gives the farmer, in his business capacity, control over the personal agents (himself and family) necessary for running a farm without first having to bargain over a price or to pay a price for the privilege of using them. Under this circumstance, claims of these agents upon farm income take the form of family living expenditures instead of wages and salaries and, therefore, cannot be considered as variable costs. This is so regardless of whether the family looks at its living expenses either as coming from a residual after the necessary farm expenditures have been met or as a minimum which must be met out of operations. In either case living expenditures vary with consumer preferences instead of farm output, and hence are not variable costs of operating the farm.

Again, were the operator of a farm, characterized primarily by the unity of functions, a full owner or a renter under terms that gave control over the use of his land (as must be the case to a marked degree), his land costs would not vary in a given year with the output level. This is obvious in case of an owner, but the same principle applies to a renter. For the degree to which the renter has complete control over the use of his land rules out any agreement whereby he must pay more or less rent, depending on his use of the land. Finally, running a farm, characterized mainly by a unity of functions, involves control over substantial working capital without first having to bargain or to pay a price for its use in a given year. In the degree that this is so, costs for the use of the capital agent will not vary with output in a given year.

A farm characterized by a complete unity of functions is equivalent to a firm in which all costs for a given year are fixed. A firm in which all costs are fixed, producing products with perfectly elastic demand schedules<sup>8</sup> and having unused capacity (within a given

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functions. Whether the "values" represented by the allocative efficacy of prices that might be thus gained so offset other values now inherent in farms, characterized by the unity of functions, as to warrant the doing away with them is beside the present argument.

<sup>8</sup> For most agricultural products, it is generally assumed that the demand schedule of the individual farm is perfectly elastic.

year), is unique. For, regardless of the amount of output, more profit would be forthcoming at given prices if output were increased. In other words, maximizing profit on the part of such firms would be equivalent to pressing output to the limit of mechanical possibilities.

There may be no actual farms which coincide with the ideal case in which there is a complete unity of functions. It is still possible, however, that a majority of American farms may so approximate this ideal that the method of profit maximization for any given year on most farms will consist in pressing output to physical limits. Even with a truly business frame of mind this is so if, whenever total acres in the farm, machinery, buildings and major equipment are held fixed in a given year, any variable cost associated with operating a farm is so small as to be unimportant and at the same time so constant that the marginal cost will remain well below any possible price of the product (or products) throughout the whole range of mechanically possible outputs. For under this circumstance product prices would remain above the variable cost of producing the last unit of output throughout the whole range of output capacity<sup>9</sup> so that it would be to the farmer's advantage to expand production of the *whole* firm to physical capacity for *any* combinations of enterprises which has been chosen. But with a workmanlike-livelihood frame of mind, output will tend to be pressed to physical limits even though variable costs are less constant and large enough to be of some consequence.

It is felt that this situation of small and constant variable costs (as well as a workmanlike-livelihood frame of mind) holds on most farms in American agriculture. The fundamental reason is this: For any firm as a whole all variable costs are out-of-pocket costs. All out-of-pocket costs involve bargaining transactions over the price to be paid for legal control of the agents of production. Therefore, all farms will have a similar cost structure only if a similar pattern of bargaining transactions holds for all farms. But when the presence or absence of the occupational unity of functions is associated with the (institutional and technological) conditions on which this unity or lack of it depends, farms probably fall into three relatively homogeneous groups, each having a different cost structure. These groups may be called Family Farms, Larger-Than-Family Farms,

<sup>9</sup> The price of the product (or products) in question would also exceed the average variable cost at full capacity.

and Inadequate Farms, respectively.<sup>10</sup> Each may be defined as follows:

*Family Farms* are all units (1) whose land and capital resources are (a) *large enough* to yield sufficient farm earnings to enable the farmer and the farm to continue indefinitely as a going concern through meeting all farm and family living expenses but (b) *small enough* to permit the labor, technological management, and business functions being performed *mainly* by family members (i.e., at least 50 percent of the annual labor input must be provided by the family) and (2) whose operating control arrangements actually invest the farm operating family with responsibility for running the farm.<sup>11</sup>

*Larger-Than-Family Farms* are units whose land and capital resources are so large as to involve an annual labor requirement at least twice as large as the family labor force.<sup>12,13</sup>

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<sup>10</sup> A rough approximation of this classification for the 1940 Census indicates that the farms were, in 1939, about 77 percent in the inadequate class, 22 percent in the family class, and 1 percent in the larger-than-family class. They produced about 33 percent, 50 percent, and 17 percent of the total farm product, respectively.

<sup>11</sup> As the nature of family farming is constituted by this unity of functions in the occupation of individual families, an appropriate control over farm operations by the operator is just as essential to the existence of family farms as appropriate size of physical resources. In other words, family farms cannot be defined or understood in terms of physical size alone nor in terms of institutional conditions alone. There are plenty of units which qualify as family farms in terms of size but which are not family farms because operational control arrangements clearly divest the operating families of control over farm operations. It must be observed, however, that whether the specific form of land tenure is owner or tenancy operatorship may be irrelevant to the existence of family farms. There are instances in which units are "family size" but which actually are not family farms though their operators are full owners, the reason being that the owner-operators have so bargained away their control over farm operations for "income" considerations as to have become virtually hired laborers. Contrariwise, there are tenants with so much *de facto*, if not *de jure*, control that the owner cannot so much as establish contour farming because the tenants don't like to plow crooked rows.

<sup>12</sup> On technological grounds alone such units are clearly incompatible with family farming. For their labor requirement is so large as to render the farm primarily dependent upon the work of outside persons for meeting this requirement, thereby rendering the operating family primarily managers of operations carried on mainly by a non-family labor force. The like does not hold, however, so long as the labor requirement is less than twice as large as the family labor force. For, under this condition, the farm (in technological terms) is a family farm because it is primarily dependent upon the operating family for performing all personal functions or requirements of a firm. Thus the absence of the employer-employee relationship as such is not a necessary condition for the existence of family (domestic) industries, regardless of whether such industries be typified by both the farm and non-farm branches of economy of the handicraft era or by the domestic segment of each branch of our contemporary economy. In both cases domestic industries are constituted by combining the personal economic functions into the occupation of the same family. And in neither case does this combination necessarily include or exclude the employer-employee relationship. If in some cases this relationship is

*Inadequate Farms* are all units (1) whose land and capital resources are so limited that farm earnings are insufficient to enable the unit to continue indefinitely as a going concern, or (2) whose operational control arrangements are such as to divest operating families of either the business control or technological management of farm operations.<sup>14 15,16</sup>

It may now be observed that the pattern of bargaining relations on family farms is such as to render the farmer's average variable cost (as the farmer probably interprets costs) in a given year both small and relatively constant throughout the effective range of farm output capacity. For on these farms the human agents, for the most part, stand to each other in a familial instead of a bargaining relation so that persons doing technological management and most, if not all, the labor cannot be hired and fired at will as required by good business principles. As a result payment of the human agents takes the form of family living costs, whose amount varies with consumer preferences rather than the levels of farm

associated with domestic industries; the unity of functions simply requires that employees be held within such limits as to render the family primarily directors of industrial operations carried out mainly, though not necessarily exclusively, by its own labor.

<sup>13</sup> In principle this class of farms breaks into subclasses as technological management is further separated from business management. However, it is felt that on most units in this class the occupational unity of functions is so done away that their operators consciously strive to hold productive processes within the limits of maximum profit (bargaining) opportunities afforded by the price system.

<sup>14</sup> It is evident that the terms "adequacy" and "inadequacy" include the presence in the firm or absence from the firm of both the institutional and technological conditions required for a continuous fulfillment of the three personal economic functions on the part of a given family. In other words, functional "adequacy" cannot be expressed in terms of technological conditions alone nor in terms of institutional conditions alone.

<sup>15</sup> To be sure, the personal economic functions on these units may be performed by the same family if institutional conditions permit. This gives them the "appearance" of family farms. But this appearance is fictitious as farm resources are too inadequate to enable the unit and its operating family to continue indefinitely as a going concern. Hence these units masquerade as family farms either (1) permanently as a result of outside income, or (2) temporarily as a result of (a) tightening the belt on the part of the family below an acceptable level of living, or (b) as the result of some portion of farm income arising from soil or capital depletion. In either case the unit *as such* does not continuously maintain but rather tends to break down the occupational unity of functions.

<sup>16</sup> Inadequate farms may be broken in sub-groups on the basis of such operator characteristics as non-farm income, off-farm work, etc. It is felt, however, that such sub-breaks would be immaterial as to whether the whole class of inadequate farms is homogeneous with respect to their price responses. For example, if resources are severely limited, the operator cannot react to prices in a businesslike manner. On the other hand if the primary source of livelihood is outside income, there is little occasion to raise or lower the level of production in line with maximum profit accumulations.

output. Again, since any bargaining over the price to be paid for the use of land occurs prior to the year's operations, such payment will remain either a fixed amount or a fixed proportion, regardless of the level of output. Consequently land costs are perhaps considered by farmers as falling within the fixed cost category.<sup>17</sup> Still again, it is unlikely that most family farmers think of the cost of durable capital as varying with different levels of output since they probably do not have enough such capital (or are not sufficiently familiar with the length of its life-use) to cause them to act in terms of its depreciation rate. Finally about the only remaining costs which the family farmer might readily interpret as varying with output levels in any given year are outlays for farm supplies, minor capital items, and perhaps some labor. It is quite possible, however, that expenditures for these items remain relatively constant per unit of output since the use of each will expand and contract in approximately a one-to-one ratio with output expansions and contractions.

On inadequate farms it appears that variable costs per unit of output will be even lower and more constant than for family farms. For in addition to all the factors that reduce variable costs on family farms, the severe lack of resources on inadequate units make it virtually impossible for their operators to build up sufficient cash reserves to enable them to engage in bargaining transactions for any appreciable amount of minor capital equipment, farm supplies, and incidental labor.

But on larger-than-family farms variable cost per unit of output is evidently much higher and less constant. A chief reason for this is that here the personal economic functions are so separated that each tends to coincide with the occupation of different individuals or families and thereby substitutes a bargaining for the familial relation among individuals in the firm. This substitution does a number of things. It greatly increases flexibility of operations by making it mechanically possible for the enterpriser to hire and fire at will the human agents as required by good business principles. Again it immediately converts into variable costs a large proportion of production costs which do not vary with output on family farms.

<sup>17</sup> Rent may not even be considered as a cost on most farms. It probably it looked upon as a share of the *farm income* that belongs to the landlord. If so, it would in effect just reduce the size of the farm (farm income) which the tenant has. If tenants look at rent in this way it is little wonder that they are very desirous of owning a farm—for they would then have access to the income of the whole farm rather than only a part of it.



For payments to the human agents are now shifted from family living expenses (whose amount depends on consumer preferences) into production outlays whose amount varies, in a given year, as the level of output varies. No sooner does this happen than the enterpriser is thereby led to see how the costs of impersonal as well as the personal agents vary with different levels of output and therefore set up depreciation rates on durable capital items so as to calculate the most profitable inputs of such items in a given year. In this way he will have become fully conscious of the cost-return-profit relationship for any level of output at the *initial* production planning stage. And, therefore, he will be on a businesslike watch at all times for any change in the price system which he may turn to his advantage through using his greater powers of flexible operations so as to widen, by the end of the year, the distance between the costs, incurred during the year through bargaining over the price for inputs of productive activities, and the total revenue, achieved through similar bargaining over the output of these activities.

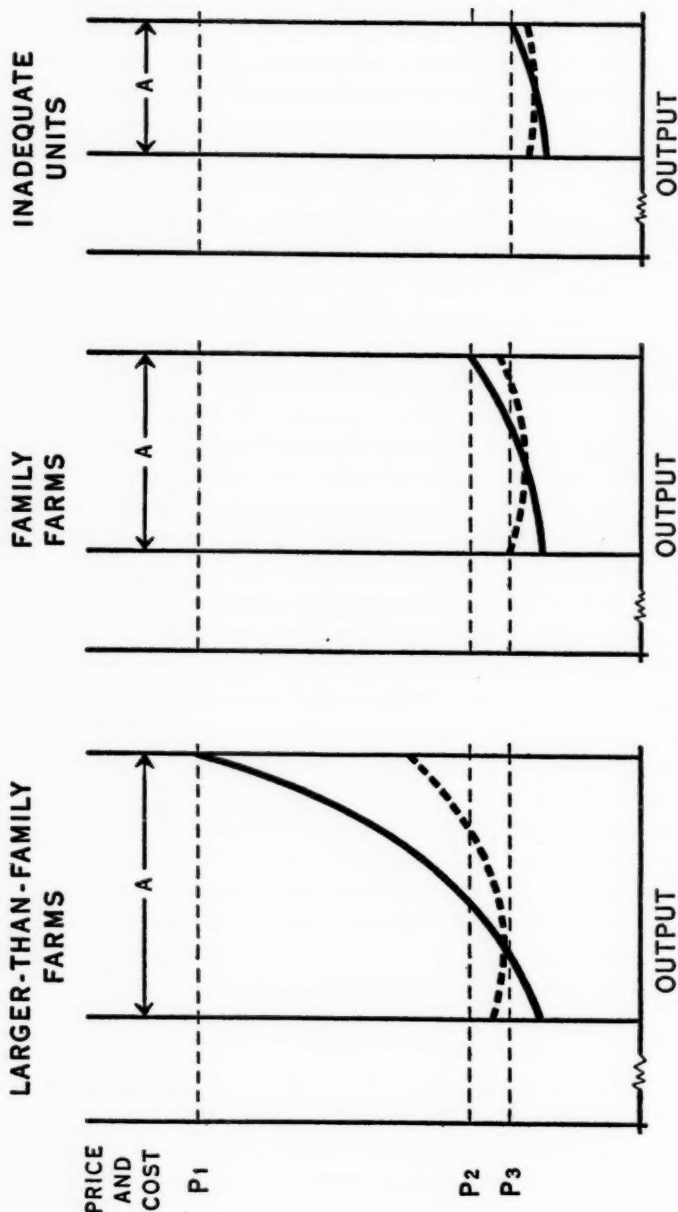
In contrast the operators of family farms do not have powers of flexible operations for taking full advantage of changes in the economic situation because the occupational unity of functions on these farms greatly reduces the operator's power to hire and fire. Also it removes most payments for personal services from the category of variable costs into fixed costs and discourages the establishment of depreciation rates as a basis for using durable capital.

There is thus little in the cost structure, to which an occupational unity of functions gives rise, that is capable of substituting a business for the workmanlike-livelihood frame of mind which also grows out of this same unity of functions. Both the frame of mind and the cost structure which emerge with this unity of functions call for output to the limits of physical capacity in the hopes that this will maximize the difference between costs and returns. Neither condition permits prices to be significant allocators of resources.

The foregoing conclusions on the variable cost structure for farms in each class are presented in pictorial form by the accompanying chart which compares such cost structures of the farm for a year's operations in which land and durable capital are held constant.

The chart indicates that a given price level will not elicit the same kind of production response for all significant groups of farms. Neither will a change in relative prices affect such groups in a like

# A COMPARISON OF PROBABLE VARIABLE COSTS BY CLASSES OF FARMS



A = Range in output with land and durable capital held constant

NOTE: THIS CHART DOES NOT ATTEMPT TO SHOW AN AVERAGE OR TYPICAL FARM FOR EACH CLASS. IT IS PRESENTED MERELY TO SHOW THAT FARMS IN EACH CLASS ARE LIKELY TO HAVE DIFFERENT VARIABLE COST STRUCTURES DUE TO THE PRESENCE OR ABSENCE OF THE UNIFICATION OF PERSONAL ECONOMIC FUNCTIONS COULDED WITH AN ADEQUATE OR INADEQUATE RESOURCE BASE.

manner. For as may be readily observed, there is a wide range in which price movements should induce operators of larger-than-family farms to vary output and at the same time induce operators of farms in the other classes to merely maintain production at maximum physical capacity. When comparing family and larger-than-family farms, this range is the area between prices  $P_1$  and  $P_2$ ; and when comparing inadequate and larger-than-family farms, it is the area between  $P_1$  and  $P_3$ . Within a given year, and with land and durable capital held fixed, operators of family farms and inadequate farms will strive to maximize production to the physical limits so long as price fluctuations (no matter how wide these fluctuations may be) fall within the limits of these zones of price insensitivity.<sup>18</sup>

At this juncture the reader may feel that these differences in operational cost may disappear over a period of time since the amount of land and capital within a firm may change sufficiently to completely modify its cost structure for another year's operations. This may be true for individual cases but not for the farms which are in each of the classes in question.<sup>19</sup> The number of farms on which this happens is likely to be small because the ability of an operator to enlarge his durable capital is mainly limited by the amount of reserves that he has been able to accumulate from earlier years. Furthermore, his ability to expand his acreage is limited, first, by his rate of capital expansion and, second, by his access to more land either through new land development or through buying or renting land away from someone else. The effect of these limitations is that changes in the amount of land and durable capital come slowly so that the above variable cost structure for farms in each class is likely to prevail from year to year without serious modification.

#### IV

The process of resource allocation may now be considered in terms of movement of resources from enterprise to enterprise within the firm.

<sup>18</sup> The analytical procedure of holding land and durable capital constant is realistic since agriculture is no longer an expanding industry, in terms of total land, and since a large proportion of expansion in durable capital comes about after a year's operation when it is known that the income residual, after operating and living expenses are met, is sufficient to permit the purchase of such durable capital items.

<sup>19</sup> There probably is movement of farms from class to class but the movement is both up and down so that the proportion of the total number of farms in each class will remain nearly constant.

How they shall be moved calls for two types of decisions. First are decisions as to *kinds of output* in terms of the numbers of acres or livestock that shall constitute an enterprise (as well as of the names of the crop or livestock that shall be produced). Second are decisions as to *amount of output* in terms of the rate of production per animal or per acre for each enterprise.

The elements (resources) involved in each type of decision are quite different. For, owing to the growth characteristic of crops and livestock, decisions as to the numbers of acres or numbers of animals that shall constitute an enterprise (kind of output) must remain relatively fixed throughout a whole year or even a number of years in case of a rotation system or in case the source of breeding stock is the farmer's own herd. On the other hand, decisions as to the amount of output can be revised from day to day at the will of the operator since judgments as to rates of feeding, rates of fertilizer application, methods of seed bed preparation, number of hay cuttings per year, methods of harvesting, etc., are influenced to only a minor degree, if at all, by the same type of biological conditions that affect decisions on kinds of output.

Now for prices to be an effective inducement to proper allocative decisions with respect to both kinds and amounts of output, two requirements are necessary, even under pure competition.

- I. Men, in the capacity of business, must have the upper hand over men acting as technological agents.
- II. Conditions, under which men act as business agents, must permit any shift in either the kinds or amounts of output that are required for profit maximization as indicated by changing price relationships.

The question now arises as to whether both these requirements are satisfied on all farms at the time decisions as to *kinds of output* are made and also at the time decisions on the *amount of output* are made.

With respect to decisions on kinds of output, *Requirement I* is met on larger-than-family farms because the occupational separation of functions permits the farmer, as a business man, to have the upper hand over men as technological agents at all times. That is to say, he can hire and fire them at will. But this is not the case on farms characterized by the occupational unity of functions. Nevertheless it is theoretically possible for enterprisers on such units to use the business man's tools (*viz.*, comparative net incomes

of contemplated enterprises) in deciding upon the kinds of output to be produced. If this is the case, then *Requirement I* may be sufficiently satisfied to warrant the assumption that prices are an effective tool for inducing operators of family and inadequate farms, as well as operators of larger-than-family farms, to properly allocate resources.

However, before this business tool can be fully utilized, it is necessary that *Requirement II* be satisfied to the extent that it is at least possible to construct a mental picture of comparative probable costs and comparative revenues of contemplated enterprises so that decisions can be made as to which enterprise will probably yield the larger net income.

Holding in abeyance for the moment the matter of comparative enterprise revenues, it may be observed that getting a picture of comparative costs of various enterprises is quite difficult since not all such costs can be merely added up; some must be imputed.

This imputation problem is present on all farms since the use of some resources (e.g., tillage equipment) is common to two or more enterprises so that the cost of using such resources for each enterprise is not first given through bargaining transactions. Instead, they must be imputed. The difficulty of such imputation becomes exceedingly great as the number of enterprises, in which the same resources are used, increases. Hence, if, as is generally assumed, there is a greater diversity of enterprises on family farms and inadequate units, this imputation of "joint costs" will be considerably more difficult on these units than on larger-than-family farms. Nevertheless, were these "joint costs" the only aspect of this imputation difficulty, it is probable that all farm operators could overcome it through sufficient farming experience. And as this is about the only cost imputation required on larger-than-family farms, enterprisers on these units have probably succeeded fairly well in setting up a basis for determining the costs of carrying on each enterprise at several different sizes.

The like cannot be said, however, for enterprisers on family farms or inadequate units since the cost imputation difficulty here takes on a twofold complication. For in addition to allocating joint costs, it is here necessary to set a price or opportunity cost<sup>20</sup> on the family labor which is to be used in each of the contemplated enterprises. However, as has been noted, the occupational unity of functions

<sup>20</sup> H. J. Davenport, *Economics of Enterprise*, pp. 60, 66.

substitutes a familial for a bargaining relation between the human agents in a firm so that any evaluation of the actual worth of their services must spring from *imagining* what would be the result (in terms of wages and salaries) if such agents were to engage in bargaining over the price to be paid for their services outside the farm. But even this placing of imaginary price tags on their services is rendered well nigh impossible by this same familial relationship. For the non-businesslike ties that inhere in this relationship make the personal agents much less alert to non-farm employment than if they were tied to the firm by a tenuous wage bargain. Being thus only vaguely conscious of what might be the market price of their services, they have no real yardstick for measuring their worth so that, if and when the time comes for them to impute an opportunity cost to the use of their services in one or another of the possible enterprises, they have virtually no basis for doing so.

Evidently, then, enterprisers on family farms and inadequate units cannot and do not construct enterprise cost curves which include either "joint costs" or "opportunity costs."

In passing from the cost to the revenue side of getting a picture of the net income advantages of various enterprises, it is clear at the start that all farmers are beset by both technological and price uncertainties inasmuch as probable revenue is the product of probable production times probable price.

There are two main ways through which they may cope with these uncertainties. One consists in feeling, on the basis of past experience, that price movements and the rates of output are each likely to fall within a certain range. Given sufficient business acumen for making such predictions, a farmer can then determine a probable range within which the revenue from each enterprise is likely to fall. But without such business ability he will be forced into coping with these uncertainties in another way; viz., by assuming that both usual prices and usual technological rates of production will continue.

Which method a farmer uses largely depends upon his business experience. Since operators of larger-than-family farms stand primarily in a bargaining relation to all the agents of production, they are continually functioning in a business capacity and, therefore, may be expected to use the first method of coping with revenue uncertainties. But since the enterprisers on family and inadequate units stand primarily in a familial instead of a bargaining relation



there is little opportunity for them to function in a business capacity and, therefore, they may be expected to use the second method.

Not only do the difficulties of calculating probable costs and revenues stand in the way of using prices as a tool for selecting the proper *kinds* of output on the basis of comparative net income advantages but also when any combination of enterprises is once chosen these same difficulties again block the use of prices as a device for determining the proper *amount* (in terms of production rates) of each enterprise to be produced. Since these difficulties can probably be handled on larger-than-family farms, relative prices may be fairly effective for inducing proper resource allocations. But since these difficulties can scarcely be handled on the farms in the other classes, decisions on the amount of each chosen enterprise on these units tend to be made either (1) on the basis of probable net revenue without regard to either joint costs or opportunity costs or (2) on the basis of probable gross revenue from each enterprise. But whichever way the decisions are made, they are likely to call for the same production response—output to the limit of physical capacity. For on these farms cash outlays attributable to each enterprise (independent of any other enterprise) are likely to be very small. And even if such outlays were to become appreciably larger, they would tend to be overlooked by farmers who are primarily guided by a livelihood-workmanlike frame of mind.

The overall conclusion, then, is that prices are not a significant tool for achieving a proper allocation of resources in American agriculture. In general, only on larger-than-family farms may they induce a proper movement of resources both to and from the farm and from enterprise to enterprise within the farm. But this is not so on family farms. For here the occupational unity of functions gives rise, first, to workmanlike-livelihood frame of mind; second, to a variable cost structure for the firm as a whole which is both small and relatively constant throughout the range of mechanically possible outputs; and, third, to an inability to develop a mental picture of comparative costs and revenues for contemplated enterprises, all of which call for output to the limits of technological capacity in the hopes of maximizing profits. Mainly as a result of these matters, prices become a partially effective tool, on family farms, for allocating resources to the proper *kinds* of output but almost totally ineffective with respect to the *rate of output per unit of input* and hence the proper output level of each kind

of food and fiber. As these conditions are further coupled with a severe lack of resources on inadequate farms, the flexibility of operations is here so limited as to virtually destroy the capacity of prices to even induce a movement of resources from the improper to the proper kinds of output. There is a constant pressure on the part of operators of both the family farms and inadequate units to press output to the limit of mechanical possibilities for any combination of enterprise, regardless of price levels or price relationships.<sup>21</sup>

## V

It may now be observed that the decision of these operators to habitually press output to the limit of mechanical capacity as the best hope of maximizing profit is re-enforced in two fundamental ways by the competitive struggle for community status.

In most agricultural communities, the majority of farms are characterized by an occupational unity of functions. And since this unity eventuates in a technological drive to increase output to physical limits, a chief badge of self-esteem and good repute in such communities becomes the increasing of rates of production and the size of operations to the physical limits. And since most persons share the powerful emulative impulse to incorporate into their own habits of life those practices which are accepted by their community as evidence of superior worth, the workmanlike-livelihood drive for a better living and for an ever increasing mastery over nature through maximizing output to the mechanical limits will receive the extra force of being desired as means to an ever larger measure of self-esteem and good repute.<sup>22</sup>

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<sup>21</sup> It is probable that these farmers will operate in such a manner as to create a constant situation of overproduction. If there is a period of relatively stable prices, it is likely that there will be an overproduction of all commodities. On the other hand, in a period of fluctuating prices it is probable that overproduction will be associated with the more favorably priced commodities.

<sup>22</sup> It is true that in most any agricultural community there are some larger-than-family farms. So it might be expected that the emulative drive for status would lead family farmers (and operators of inadequate units) to substitute the principle of holding inputs and outputs at levels consistent with maximum returns to investment for the principle of maximizing output to the limits of mechanical possibilities in the hope that this will maximize profit. It is probable, however, that just the opposite happens for a number of reasons. To start with, there is little doubt that family farmers frequently do consider the operations of larger operators in making decisions on what practices should be adopted as means of becoming judged a good farmer. But in this comparison of his own practices with those of the larger operator, what the family operator probably *sees* is that both he and the larger operator are striving for greater technological efficiencies (higher

Again, a community, whose firms are characterized by an occupational unity of functions, is actually a society of functional equals—free and responsible self-bossed persons. For, in virtue of this unity, individuals in a firm are not beholden to economic commands of another because in being enterprisers they alone are the source of the decisions which they are responsible for carrying out as technological managers and laborers. But one's nature and standing as a self-bossed person is destroyed as soon as the personal economic functions are torn apart as elements in his occupation and re-established as occupations of different individuals or families. For under this condition, persons in a firm stand to each other in a superior-inferior relationship; meaning by superior one who has legal power to decide another's action, and by inferior one who is under legal obligation (so long as the relation lasts) to follow the commands of another.<sup>23</sup> Accordingly failure to maintain one's nature and standing as a self-bossed person is ordinarily interpreted by the members of a community of functional equals as evidence of incompetence—inferior worth. As most men dread the prospect of such judgment being passed upon them,<sup>24</sup> the workmanlike-livelihood drive for pressing output to the limit of mechanical possibilities will receive the extra force of still another stimulus—the security demand for quieting one's fear of falling from the

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yields per acre, greater output per animal, man hour, etc.). What he does *not see* is that, instead of being associated with a state of mind which causes one to press output to the limit of mechanical possibilities, this drive for greater technological efficiencies on the part of the larger operator is consciously held within such limits as will maximize profits through bargaining over the price to be paid for the use of each agent of production and over the price of the outputs of such agents. In thus seeing, on the one hand, the larger operator's progressive adoption of more efficient practices, and, on the other hand, failing to see the state of mind which causes him to hold technological operations within the limits of maximum profits, the family farmer very logically concludes that the larger operator has reached his greater success solely through following the same governing principle that the family farmer himself is following. Thereby the family farmer again convinces himself that he should strive harder than ever to become a better farmer through pressing output to the limit of mechanical possibilities.

It thus appears that while it has been a general practice to impute to family farmers the same pecuniary objective and frame of mind that seem to inhere in larger operators, family farmers have been imputing to larger operators and other business men the same interest and frame of mind which inhere in themselves.

<sup>23</sup> Commons: *Ibid.*, p. 64.

<sup>24</sup> Much of the so-called "labor movement" during the Jacksonian Era seems to have been largely a protest against a fall in status that sprang from a general deterioration in that period of domestic industries or "independent operators" (including many Eastern farmers). At least several suggestions to this effect are to be found in Arthur M. Schlesinger, Jr., *Age of Jackson*, Ch. XV, XVI. Joseph Dorfman, *The Economic Mind in American Civilization*, Vol. II, Ch. XXIV.

level of self-bossed persons into the lower ranks of subordinate laborers, forever at the beck and call of another's will and purpose.

## VI

Since, depending on the premises that one uses, abstract reasoning leads to either the belief or disbelief in prices as a significant tool for inducing a proper allocation of resources within American agriculture, the foregoing discussion, which leads to a disbelief, indicates that inquiry is needed along two lines.

First, there is need for research that will come out with both a description of how and why the different classes of farmers actually respond to prices and other stimuli in given economic and social situations as well as how and why their response changes as such situations change. For until this is known, it is not possible to predict the farmers' most probable reactions. Such a prediction is a matter of crucial importance because there is no means at hand for constructing such policies as will induce farmers to bring about *what ought to happen* in terms of the social interest until one is able to compare this with what is likely to happen in given situations.

But accomplishment of this purpose in turn calls for a second type of investigation that will determine the function of "economic models" in those inquiries whose objectives are either to describe or to predict the behavior of American farmers or to predict the relative benefits of alternative agricultural policies.

## INCOME STABILITY IN HIGH-RISK FARMING AREAS\*

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**S**TABILIZATION of incomes to farmers has been the subject of much discussion during the past two decades particularly. Many programs to provide more stability to farmers' incomes have been proposed, and a number have been tried. Those designed to stabilize prices include marketing agreements, commodity loans, and purchase and disposal programs; those intended to provide a more stable flow of products from the individual farm to the market include farm storage, crop insurance, and conservation programs. Attainment of relative stability of incomes is a desirable objective, but the difficulty of obtaining it in some situations is not always fully appreciated.

Instability of production and incomes is a much more acute problem in some parts of the country than in others. Natural factors introduce many more hazards into farming in some areas and in some types of farming than in others. The highly variable wheat yields of the Great Plains are an outstanding instance of the difficulties attendant upon attempts to provide more stability of farm incomes in an area where weather fluctuations are extreme and variations in crop yields are largely beyond the control of man. Many fruit producing areas have comparable hazards of a catastrophic type associated with more or less frequent heavy damage from frost or hail.

Even though it were possible to stabilize completely such economic factors as costs and prices, the effect of weather hazards through yield variations would still result in extreme fluctuations in annual farm incomes.

In an area such as the Great Plains the risks in farming created by weather hazards, primarily recurring drouth, have been and will continue to be among the most crucial factors with which farmers and public servants must deal in attempting to improve the general economic environment.

The most effective way to grasp the significance of this situation is to consider what the effects of yield variations alone would

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be on the farm income of a typical wheat farm. This variation is well illustrated in table 1, which shows the wheat yields per acre and the resulting income expectancy during a 26-year period on a wheat farm of 600 cropland acres in northeastern Montana. The

TABLE 1. ILLUSTRATION OF EFFECT OF YIELD VARIATIONS ON FARM INCOME ON A WHEAT FARM IN NORTHEAST MONTANA, WITH STABLE PRICE AND COST RATES AND ACTUAL WHEAT YIELDS IN SHERIDAN COUNTY, 1919-1944<sup>1</sup>

Year	County yield per planted acre	Gross income <sup>2</sup>	Cash operating costs <sup>3</sup>	Total expenses and allowances <sup>4</sup>	Income after cash operating costs	Net result after total expenses and allowances	Cumulative net result
	<i>Bushels</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1919	3.0	720	1,210	3,413	- 490	-2,693	-2,693
1920	5.9	1,764	1,277	3,480	487	-1,716	-4,409
1921	12.2	4,032	1,332	3,535	2,700	497	-3,912
1922	20.0	6,840	1,422	3,625	5,418	3,215	- 697
1923	10.6	3,456	1,320	3,523	2,136	- 67	- 764
1924	19.9	6,804	1,422	3,625	5,382	3,179	2,415
1925	8.6	2,736	1,297	3,500	1,439	- 764	1,651
1926	12.8	4,248	1,345	3,548	2,903	700	2,351
1927	19.0	6,480	1,412	3,615	5,068	2,865	5,216
1928	18.7	6,372	1,410	3,613	4,962	2,759	7,975
1929	7.1	2,196	1,252	3,455	944	-1,259	6,716
1930	7.6	2,376	1,286	3,489	1,090	-1,113	5,603
1931	2.2	432	1,138	3,341	- 706	-2,909	2,694
1932	9.2	2,952	1,300	3,503	1,652	- 551	2,143
1933	5.3	1,548	1,268	3,471	280	-1,923	220
1934	2.0	360	1,136	3,339	- 776	-2,979	-2,759
1935	5.4	1,584	1,260	3,463	324	-1,879	-4,638
1936	1.7	252	1,174	3,377	- 922	-3,125	-7,763
1937	0	0	1,042	3,245	-1,042	-3,245	-11,008
1938	5.7	1,692	1,598	3,801	94	-2,109	-13,117
1939	10.4	3,384	1,320	3,523	2,064	- 139	-13,256
1940	14.1	4,716	1,357	3,560	3,359	1,156	-12,100
1941	19.2	6,552	1,410	3,613	5,142	2,939	- 9,161
1942	21.2	7,272	1,424	3,627	5,848	3,645	- 5,516
1943	24.8	8,568	1,470	3,673	7,098	4,895	- 621
1944	20.0	6,840	1,422	3,625	5,418	3,215	2,694
Average	11.0	3,622	1,320	3,522	2,302	100	

<sup>1</sup> Calculations for a wheat farm with 600 acres of cropland—400 acres of wheat and 200 acres of summer fallow. Equipment and operating efficiency assumed at about the average level prevailing in the early 1940's.

<sup>2</sup> Farm price of wheat assumed to be 90 cents per bushel throughout the period.

<sup>3</sup> Constant cost rates assumed, but adjustments made for costs that are variable with yields.

<sup>4</sup> Includes \$1,000 allowance for family living, \$667 interest on investment, and \$536 depreciation charge annually in addition to cash operating costs.



present techniques and practices in wheat production are assumed; and wheat prices and production cost rates are held constant during the period; but yields are varied in accordance with actual experience from 1919 to 1944 in Sheridan County.

A farm budget prepared on the basis of normalized yields, prices, and incomes would show that as an average for the 26-year period such a farm would provide a family labor income of about \$1,100, after allowance for depreciation and interest on investment, or a net result of \$100 after an additional allowance of \$1,000 for family living expenses. With the yield variations that actually occurred, however, this average net result of \$100 varied from -\$3,245 to \$4,895.

These surpluses or deficits after allowance of a reasonable amount for family living did not occur randomly, but tended to be grouped into a series of deficit income years followed by a series of "surplus" years, though obviously not in predictable sequence. The resulting impact upon the financial position of the farmer is demonstrated by the cumulative net result. At one point this accumulation reached a surplus of nearly \$8,000; this was followed by a deficit of over \$13,000 about 12 years later—brought about solely by variations in yields. For the 26-year period there is a small surplus that resulted from a succession of very high yields during the last 5 years of the period. The descriptive phrase "from boom to bust" apparently would still be applicable in such an area even though costs and prices were completely stabilized.

What can be done to provide a more even flow of income to farmers in such a situation? Even though it is assumed that future prices and costs to farmers will tend or can be made to remain fairly stable over a period of years, it is hardly likely that yield variations will be reduced greatly in intensity. Drought resistant varieties of wheat, more widespread use of moisture conserving practices, and more timely cultural operations can all play a part in reducing the intensity of such fluctuations, but they cannot be expected to have more than a relatively minor influence in reducing the magnitude of the variations.<sup>1</sup> The one important factor is rainfall, which can only be conserved—not changed in amount.

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<sup>1</sup> The illustration used here for simplicity assumes no enterprise other than wheat, a not uncommon organization for many farms in the Plains. A livestock enterprise, under favorable circumstances, would introduce some stability into farm income. In a period of several successive severe drought years for many parts of the region, however, a livestock enterprise might easily become a liability rather than an asset.

In the illustration used above the farm *on the average* was solvent and provided a reasonably satisfactory income. A farm of this size is definitely above the average of those in Northwestern Montana, and there are many wheat farms throughout the Great Plains of insufficient size to produce the volume of products necessary to provide an average net family income comparable to that used in this illustration. Many difficult problems of farm size adjustment remain to be solved to bring the inadequate sized units up to the point where they can hope to provide a reasonably adequate farm income on a normal basis. But even when these farm size adjustments have been made and normal income expectations can be considered adequate, there still remains the problem of fluctuating income created by the extremely variable crop yields. It is in the extreme departure from the average that much of the financial distress, alternated with occasional apparent prosperity, has arisen in the Great Plains.

The obvious answer to the question of how to provide a more even income flow is a system of reserves that can be accumulated in periods of high yields to carry through the periods of drought. A sound crop insurance program is one method of attempting to meet the situation, though full insurance is almost impossible of attainment. The program is particularly difficult to operate in periods of high yields when premium rates are still necessarily high because of past experience with low yields. The psychology of the Plains farmer is to expect that next year will be another good year—particularly when such years often come in a series. This would tend to make participation in the insurance program low after a succession of good years and high in periods of successively low yields; with consequent difficulties of administering and maintaining a sound, self-sustaining insurance program. Use of a long-term insurance contract, such as the present 3-year policy, alleviates part of these difficulties, but the tendencies may still prevail.

The accumulation of financial reserves during periods of high yields might be a more satisfactory alternative, but if it is to be undertaken on a voluntary basis it requires a high order of intelligence and self-denial on the part of the farm operator. Then, too, a long series of low-yielding years might easily wipe out even a substantial reserve, although a system of liberal, low-interest credit might be devised to carry through such periods.

Speculation on how income stability might be facilitated is as-

sisted by tracing the financial adjustments that might be made on the farm illustrated in table 1 through a period of years with the yield experience of the 1919-44 period (table 2). In low-income years (or series of years) farmers adjust to their changed income situation by such devices as reducing family living expenditures,

TABLE 2. ILLUSTRATION OF FINANCIAL ADJUSTMENTS ASSUMED TO BE MADE ON THE WHEAT FARM SHOWN IN TABLE 1 WITH (A) CROP INSURANCE (REDUCED PREMIUM PLAN) AND (B) WITHOUT CROP INSURANCE

Year	Interest and depreciation deferrals and repayments <sup>1</sup>		Cumulative deferrals		Available for family living <sup>2</sup>		Surplus or deficit <sup>3</sup>	
	Crop insured	Crop not insured	Crop insured	Crop not insured	Crop insured	Crop not insured	Crop insured	Crop not insured
	Dollars (1)	Dollars (2)	Dollars (3)	Dollars (4)	Dollars (5)	Dollars (6)	Dollars (7)	Dollars (8)
1	-1,203	-1,203	-1,203	-1,203	800	600	-156	-1,090
2	-1,203	-1,203	-2,406	-2,406	600	600	-25	-113
3	-259	497	-2,665	-1,909	1,000	1,000	0	0
4	2,459	1,909	-206	0	1,000	1,500	0	806
5	-323	-67	-1,029	-67	1,000	1,000	0	0
6	1,029	67	0	0	1,500	1,500	921	2,612
7	-1,142	-764	-1,142	-764	1,000	1,000	0	0
8	322	700	-820	-64	1,000	1,000	0	0
9	820	64	0	0	1,500	1,500	1,167	2,301
10	0	0	0	0	1,500	1,500	1,881	2,259
11	-1,023	-859	-1,023	-859	800	600	0	0
12	-857	-913	-1,880	-1,772	800	600	0	0
13	-1,100	-1,203	-2,989	-2,975	1,000	600	0	-1,306
14	-1,005	-251	-3,994	-3,526	1,000	1,000	0	0
15	-1,039	-1,203	-5,033	-4,729	800	600	0	-326
16	-898	-1,203	-5,931	-5,932	600	600	0	-1,370
17	-1,203	-1,203	-7,134	-7,135	600	600	-6	-276
18	-1,203	-1,203	-8,337	-8,338	600	600	-280	-1,522
19	-1,203	-1,203	-9,540	-9,541	600	600	-22	-1,642
20	-1,203	-1,203	-10,743	-10,744	600	600	-344	-506
21	-895	-139	-11,638	-10,883	1,000	1,000	0	0
22	400	1,156	-11,238	-9,727	1,000	1,000	0	0
23	2,183	2,939	-9,055	-6,788	1,000	1,000	0	0
24	2,916	3,645	-6,139	-3,143	1,000	1,000	0	0
25	4,517	3,143	-1,622	0	1,000	1,500	0	1,252
26	1,622	0	0	0	1,500	1,500	715	2,715
Average					946	954		

<sup>1</sup> Minus indicates necessary deferment of part or all of depreciation and interest on investment charge. Plus indicates an allowance in the current year for repayment of previously deferred charges. Depreciation—\$536; interest on investment—\$667 per annum.

<sup>2</sup> The assumption is that family will adjust its living expense down to a minimum of \$600 when income is insufficient to cover interest and depreciation charges and that it will spend \$1,500 when these charges are current and there is a surplus income.

<sup>3</sup> Minus indicates amounts necessary in addition to gross sales to cover minimum family living expenses and non-deferrable operating expenses. Surpluses are the amounts available after payment of all charges, including previous deferrals, and allowance of \$1,500 for family living. With some form of income insurance or a savings fund these would represent payments and withdrawals from the fund.

delaying building repairs and replacement of machinery, and foregoing returns on capital investment. The illustration in table 2 assumes that (1) interest on investment and depreciation reserves for buildings, machinery, and equipment are deferrable items, (2) that family living expenditures will be reduced to a minimum of

\$600 per year when income is not sufficient for the current year to cover these deferrable items, (3) that when current income is sufficient to cover these deferrable items family living expenditures will be increased to \$1,000 and any excess will be used to reduce accumulated deficits in interest on investment and depreciation, and (4) that when all items are current and surplus income is available family living expenditures will increase to \$1,500 and any excess will go into savings. These assumptions over-simplify the adjustments that farmers actually makes but are close enough to demonstrate the effect of highly variable incomes.

Despite the adjustments assumed, it would be necessary in 9 years out of 26 (with no crop insurance in effect) to have access to savings, relief, or other funds to keep the family and the farm going. In 6 years there were substantial sums available for savings. If these savings were accumulated in a savings fund and withdrawn only under conditions specified, it would be possible for the farm family to carry on with only a small deficit in the account even during the 10-year period of successive below-average yields. This assumes for the moment that the farmer has no burden of debt to carry.

The actual cash position of the farm family would depend partly upon the amount of farm indebtedness. If this farm were free of debt at the beginning of the period, the amount available for family living or for savings would average \$667 more annually than indicated—the amount charged as interest on investment. If indebtedness at the beginning of the period were 50 percent of the investment value, the \$667 charged to interest on investment would be about sufficient to pay interest and amortization charges for a 20 to 25 year loan. Under the usual repayment arrangement the mortgage payments would be in arrears for a number of years. But over the entire period such a loan would be sound, although there would be required some prepayment of interest and principal in the early years and postponement of payments entirely during a period of about 8 successive years. If such postponement of debt service charges could be made by payment of simple interest on the deferred amounts, the farmer would have been solvent and debt free at the end of the period.

The most striking thing about the case illustration above is the infrequency of surplus funds available for savings or payment into an income insurance fund. In only 6 years of the 26 (with no crop

insurance) were there such surpluses, although these were large in amount. The necessity for preserving the large incomes in these occasional years for use in years of adversity is obvious if farming in such hazardous areas is to be a stable enterprise.

While the yield experience of the past 26 years probably will not be repeated in the future in the same sequence of low and high yields, it is almost certain that yields will continue to be highly variable from year to year and that there will be successive years of low yields as well as periods of high yields, though not in predictable fashion.

Further attention needs to be directed to ways and means of husbanding the surpluses of the bumper years as an income reserve for use in the inevitable years of crop failure or low yields. Crop yield insurance, if effective and widely participated in, is part of the answer. But accumulations of savings or income insurance through use of the occasional surplus incomes may be as important. For the operator with real estate indebtedness, advance retirement of indebtedness provides the most effective use of these surpluses.

The extent to which crop insurance, as currently operated for wheat, can contribute to stabilization of incomes is indicated in table 2 for the farm illustration shown in table 1.<sup>2</sup> The net effect of the operation of this insurance program during the 26-year period on this farm would be to provide sufficient income to the farm family to cover cash operating expenses (excluding interest and principal payments on debt and depreciation charges) and cash for family living to the extent stipulated in table 2, with the exception of minor deficits in a few years. This contrasts with major deficits of \$1,000 to \$1,600 in five years of the period with no insurance program in effect (Columns 7 and 8). With minor exceptions the amount allocated for family living was the same in both instances (Columns 5 and 6).

In neither case would there be reserves available to take care of interest on investment or depreciation charges during successive years of low yields like those that occurred in the 1930's. The accumulated deficits for these two items in both cases, i.e., with insurance and without insurance, would be about \$11,000 at the end

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<sup>2</sup> No attempt is made here to appraise the operations of the current Federal Crop Insurance program, but merely to illustrate how some of the major provisions operate on an individual farm to provide income stability.

of a protracted drought period, such as occurred in the 1930's (year 21 in table 2, Columns 3 and 4). Complete ownership of the farm, a large cash reserve, or access to other sources of credit would have been necessary in both instances if the farmer were to ride through such a drought period in a solvent position until the next period of above average yields.

Crop insurance for the individual is in effect the accumulation of reserves in high-yield years which can be drawn upon in low-yield years through indemnity payments by the insuring agency. In the case of the farm illustrated here and with the yield experience indicated, the farm would be assessed under the present Federal Crop Insurance program with an annual premium of 840 bushels for 75 percent coverage (table 3).<sup>3</sup> This premium rate is 19 percent of the average yield, or 25 percent of the guaranteed yield (75 percent of average) on an annual basis; or 15 percent and 20 percent respectively as an average for the 26-year period, taking into account the years when reduced premiums were in effect because of accumulated insurance reserves. This rate, which may appear to be high, is considerably below that in many other areas of greater risk, some of which have annual premium rates as high as 40 or 50 percent of the guaranteed yield on a 75 percent basis; and it is representative of the rates in large areas of the Great Plains. These high rates, necessary for the kind of risk involved, have discouraged many farmers from entering the insurance program; they have preferred to gamble with uncertain weather rather than pay the certain costs of insurance.

The net effect of the insurance program is to reduce the volume of wheat for sale by the amount of the premium during years when yields are 75 percent or more of normal and to increase the amount for sale during low-yield years. The accumulation of an insurance reserve during successive years of average or above average yields is, in effect, the equivalent of the establishment of a financial reserve. With present crop insurance program provisions the reserve builds up slowly after 75 percent of the average farm production has been reached, because premium rates are reduced by one-half after that point. In the illustration used, an insurance reserve of about 5,000 bushels (somewhat more than the annual average pro-

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<sup>3</sup> Coverage in terms of the average yield. A 50 percent coverage is also available at reduced premiums to provide some protection to those not interested in the more complete coverage at higher premium rates.



duction of the farm) would have been accumulated by the late 1920's; this in turn would have been exhausted during the period of low-yielding years of the 1930's.

Indemnity payments on this farm would have been made in 11 years of the 26-year period, most of them during the period 1929

TABLE 3. ESTIMATED ANNUAL CROP INSURANCE PREMIUMS, INDEMNITY PAYMENTS, AND INSURANCE RESERVE FOR THE FARM SHOWN IN TABLE 1

Year	Insurance premium <sup>1</sup>	Indemnity payment	Insurance reserve
	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>
1919	840	2,100	0
1920	840	940	0
1921	840	—	840
1922	840	—	1,680
1923	840	—	2,520
1924	810	—	3,330
1925	420	—	3,750
1926	420	—	4,170
1927	420	—	4,590
1928	420	—	5,010
1929	420	460	4,970
1930	420	260	5,130
1931	420	2,420	3,130
1932	505	—	3,635
1933	420	1,180	2,875
1934	632	2,500	1,007
1935	840	1,140	707
1936	840	2,220 <sup>2</sup>	0
1937	840	2,640 <sup>3</sup>	0
1938	840	1,020	0
1939	840	—	840
1940	840	—	1,680
1941	840	—	2,520
1942	810	—	3,330
1943	420	—	3,750
1944	420	—	4,170
Average	655	649	2,447

<sup>1</sup> Reduced premium plan. The reduced premium becomes effective after the accumulated reserve has reached 75 percent of average gross farm production.

<sup>2</sup> 150 acres harvested—minimum appraisal of 20 percent used.

<sup>3</sup> 80 percent settlement plan with complete crop failure.

to 1938. It should be noted that the indemnity payment shown is gross. The net to the farmer is obtained by deducting the premium from the gross indemnity payment. For instance, in 1935 the net indemnity would have been only 300 bushels (1140 minus

840). When added to the 5.4 bushel yield obtained, the farmer had an equivalent yield of 6.2 bushels per acre, or 56 percent of the average yield, from which to pay operating expenses and provide funds for family living.

During a period of successively low yields in which indemnity payments are made the individual insurance reserve declines to the point where reduced premium rates no longer prevail. Premium rates are then increased to the full amount, in this case, when the farmer would be least able to afford such an increase. This retrogressive character of the constant or reduced premium plan has led to the suggestion for variable or percentage premiums. Variable premiums would provide greater net indemnity payments in low-yield years, but would require larger premium payments in higher-yield years.

A "yield percentage premium" plan was applied to the farm illustrated above on the basis of a constant percentage of each year's yield at a level which would provide total premium payments for the 26-year period equal to those paid under the reduced-premium plan shown in table 3. Under such a plan, assuming adjustments in family-living expenditures comparable to those indicated in table 2, there would be no deficit in any year after payment of cash expenses for farm operations and family living, and in no year would it be necessary to defer completely the total interest and depreciation charges. The net result would be a maximum cumulative deferment of these charges of only \$8,400 compared with almost \$11,000 under the reduced premium plan. The "yield percentage premium" plan would thus in effect provide for greater accumulation of reserves and a more stable income flow than is possible with the present program. To be administratively feasible, some method of obtaining continuous participation in the program would need to be devised.

Continuous crop insurance participation under the presently available program makes a significant contribution to stability of income by providing in low-yield years bare minimum income for living and continued operation of the farm. But rather drastic adjustments are necessary in the level of family living. Nor does such a program provide sufficient reserves in those many cases where interest and principal payments on debt must be made concurrently or provide enough for machinery and equipment replace-

ment during an extended period of drought. The solution to financing of these items must be found elsewhere.

One possibility for alleviating distress might be the provision through some governmental agency for drought loans, which would be available in low income years for payment of fixed debt charges and for hardship cases created by unusual family expenses, but definitely recognized as an occasional necessary service in such high-risk areas. These loans would constitute a deferred charge to be paid off in high income years. In effect, this would be provision of a line-of-credit that could be drawn on when needed. Operation of such a scheme on a sound basis would require thorough knowledge on the part of the loaning agency of the long-term income capabilities of the individual farm and confidence in the individual farmer.

Another possibility for increased income stability for the operator with mortgage indebtedness is a system of variable mortgage payments which would be related to variations in yield or in income. Such a method of payment can alleviate distress to some degree, particularly if advance payments accumulated during good income years can be used to reduce or eliminate payments during bad years. This is no solution to the farmer who assumes a debt immediately prior to a series of drought years and thus has accumulated no reserves. What is needed in this case is complete debt payment deferment until a favorable period of years. Private lending institutions probably could not arrange for such treatment of loans, unless some system of mortgage insurance could be devised whereby advances to the lending institution could be made during unfavorable years, to be assessed against the borrower in favorable income years. Considerable experience with variable repayments related to income has been accumulated in the operations of the Tenant Purchase program.

The foundation for development of adequate financing arrangements peculiarly suited to the kind of risk involved in these high-risk areas must lie in confidence that a period of drought years will be followed in turn by a series of favorable years; and that over a long period of years the average yields, size and organization of the farm, and ability of the farmer are such as to result in a solvent long-term operation.

Because of the nature of farming in such areas a long-time view

must be taken in analyzing the income capabilities. Development of adequate financing and risk-bearing devices offers hope of providing more income stability in the apparently inevitable swings from crop failure to bumper yields in those areas where income capabilities over a long period of years is reasonably adequate. But at best no set of devices can be developed on a self-sustaining basis for an area which is too submarginal for crop farming even when the good years are included. Analysis of the long-time income possibilities on the basis of data that have been accumulated over the past 25 or more years may be helpful in the delineation of such sub-marginal areas and in reorienting our thinking regarding proper adjustments.

## THE DETERMINATION OF MILITARY SUBSISTENCE REQUIREMENTS

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THE prosecution and climax of military activity during World War II was highlighted, in the public eye, by mechanized equipment and scientific developments associated with unprecedented volume of production. The emergence and application of radar and nuclear fission overshadowed problems and developments in the area of logistics. Unless the development of logistic planning and execution had superseded the corresponding methods used earlier, however, the successful execution of military operations, *per se*, would have been at least impeded if not altogether impossible.

In the requirements planning phase of World War II, the procedures and problems peculiar to subsistence, primarily food, may be of interest and some significance to professional economists. The theoretical concept of demand has only a limited role in the estimation of military requirements. Current and projected military strength in terms of numbers of individuals, their specialized activity, geographical deployment and consumption rates are combined with data on current inventories and projected reserve levels to determine basic military requirements. For a given set of such independent variables, the "demand" is uniquely determined; the only limitation to the fulfillment of such requirement is the physical availability of supply, with consideration given to needs of other claimants such as civilians and other governmental agencies. Although elasticity of demand with respect to income is practically disregarded in the estimation of military subsistence requirements, consideration is given to cross-elasticities of demand with respect to price. For example, relations between prices of canned peaches and canned pears are considered in determining the relative quantities of each to be procured. However, such substitution is limited to items which are nutritionally equivalent.

Military subsistence requirements and demand are primarily determined by what may be termed a non-price calculus. Margins

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are balanced but not between money-cost and money-revenue functions; on the contrary, between the respective marginal physical requirements of the various areas, theaters and troop components subsisted. Thus the question is raised as to how military subsistence requirements are determined in practice. Our objective is to outline and discuss the standard procedures used during World War II.

Prior to the Selective Service Act, the Army strength was about 150,000 individuals, located primarily in permanent posts throughout the country. Food was supplied by means of what is termed the garrison ration basis. This system involved a money allowance per man per day, and reflected planned menus and the current market prices of a specified group of items. Each mess-sergeant was permitted to operate largely independently within his money allotment; and inducement to minimize money expenditure was that money saved remained with the company for purchase of luxury goods and entertainment. This system was comprised of many mess-sergeants operating their own "households" through independent purchases in local markets, although some central large-scale procurement was made to effect economies through quantity purchases.

The passage of the Selective Service Act, followed by the accelerated growth of the Army from 150,000 in 1939 to over 8,000,000 individuals in 1943, made obsolete the garrison ration basis system. A camp of 50,000 men could not obtain its food needs daily from a nearby town through local open-market purchases. In addition, with the deployment of ever-increasing numbers of men to overseas areas where local markets could not be depended upon, the need for centralized procurement was emphasized. The overseas deployment situation and its changing character may be illustrated by the fact that at the end of 1943, the 8,000,000 man Army was distributed with about 60 percent in this country and 40 percent overseas; a year later the situation was reversed, with slightly more than 60 percent of the Army overseas.

Rapid Army growth and increased deployment over many parts of the world resulted in the elimination of the garrison ration and the inauguration of the field ration, that is, the furnishing of food to the posts in this country and overseas theaters in "kind" or "substance." Moreover, centralized procurement was developed to eliminate the competition of various areas (e.g., Service Com-



mands) among themselves for available supplies. Specialized central procurement was effected by charging specific supply depots with procurement responsibility for items produced or traded heavily in their location. For example, Jersey City Quartermaster Depot concentrated in coffee, sugar, and certain fruits and vegetables; Chicago Depot specialized in procuring fresh meats, processed dairy products, and canned meats; and the California Depot procured the Pacific Coast fruit and vegetable outputs and canned fish. In addition, some thirty-five market centers were established to concentrate on the procurement of perishables; they were geographically located so as to take advantage of local production and availability in relation to camp requirements in their area.

Simultaneously with the institution of the field ration system and the development of specialized central procurement, the Army was faced with the growing need for reliable estimates of future requirements. These estimates were required not only as a basis for congressional appropriations, but also for planning and allocation by the War Production Board, Department of Agriculture and its associated agencies such as the War Food Administration and Combined Food Board. The Army had to know "how much it needed and when." Thus, procedures and problems inherent in estimation of subsistence requirements became an important phase of logistics. The previous narrow concept of logistics, limited primarily to the procurement, storage, transportation, and issue of military supplies, had to be supplemented by logimetrics, which involved the forecasting and planning of requirements and procurement, not only in the aggregate but also with respect to time periods, specific areas, and commodity interrelations.

The basic formulae and concepts involved in subsistence requirements estimation are straightforward. In the simplest case, net requirements for a defined period of time for a specific commodity are equivalent to consumption requirements during the period plus period-end authorized reserves minus period-beginning assets on hand. In other terms, net requirements are equivalent to consumption during the period, plus an inventory adjustment between beginning and ending stocks. In the application of the concepts, however, problems arise with respect to adequate data and determination of the equation components.

Consumption requirements, for a specific item for a definite pe-

riod, are a function of the consumption rate per man and the number of men subsisted.<sup>1</sup> The number-of-men variable is independent in the sense that the current and projected data are available from currently revised troop schedules which spell out in great detail the planned strength, composition, and deployment of the Army as of various specified dates in the future. Thus, for a particular component or group of men, the number of man-days (or man-months) involved in the period can be determined. Consumption requirements for the period, therefore, are obtained by applying consumption rates to the strength factors.

The consumption rates are of several types. They may be merely a direct reflection of planned menus which are periodically prepared centrally and distributed to the various camps and theaters as guides; such menus are nutritionally balanced and reflect seasonal availability. The fact that the menus are guides, rather than directed actual menus, results in situations where actual menus and resulting consumption rates may vary widely from the planned menus and rates. In order to establish requirements estimates in line with actual requisitions, it is necessary to base such estimates on real consumption rates which were obtained by statistical analyses of field study data reflecting actual issues at the camps and in the theaters.

A sample study, based on some forty Army ground and air force stations, made available for the first time actual or real rates of consumption in this country for use in over-all requirements planning. The sample camps were selected so as to reflect in adequate proportion types of military strength subsisted, their geographical locations, with due consideration to effects of seasonality in the availability of supplies in various regions. One of the results of such study indicated that actual consumption in this country amounted to 4.3 pounds per man per day, in contrast with 5.1 pounds per man per day reflected in the planned master menu. Variations among particular groups of items are illustrated in the following tabulation:

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<sup>1</sup> Consumption requirements, in units of  $U$  pounds (or some other physical measure), for  $(K+1)$  time-intervals,  $T, T+1, \dots, T+K$ ,  $= \left( \frac{ML}{NU} \right) \left[ \sum_{v=T}^{T+K} S_v C_v \right]$ .

$S_v$  = number of men to be subsisted during time-interval  $v$ , in units of  $M$  man-days; and  $C_v$  = consumption rate per  $N$  man-days during time-interval  $v$ , in units of  $L$  pounds (or some other physical measure) per  $N$  man-days.

	Actual Issues as Per- cent of Prescribed Issues*
Frozen Fruits.....	157%
Frozen Vegetables.....	147%
Canned Fruits and Juices.....	139%
Canned Vegetables.....	111%
Spreads.....	106%
Spices.....	94%
Sugar.....	90%
Dairy Products.....	89%
Eggs.....	89%
Vegetables, Dried.....	82%
Fruits, Evaporated.....	82%
Fish, Fresh and Canned.....	81%
Miscellaneous and Desserts.....	80%
Meats, Fresh and Canned.....	79%
Beverages.....	78%
Fats and Oils.....	77%
Grains and Cereals.....	77%
Vegetables, Fresh.....	77%
Fruits, Fresh.....	76%
All Items (Weighted Average).....	83%

\* Source: Requirements Study No. 18, U. S. War Dept. O.Q.M.G. (April 10, 1944).

Reflection of actual issue rates, rather than prescribed rates, in the estimation of future requirements resulted in a reduction of 12 per cent in the programmed money cost of subsisting Army strength in this country.

In the estimation of consumption requirements for Army personnel, distinction must be made between regular (Types A and B) rations and emergency (Types C, D, K, 10 in 1) rations, as well as special rations for emergency use of the air force.<sup>2</sup> The consumption requirements for emergency rations are much more difficult to forecast due to the extreme variability in experience. They must be provided for, nonetheless, through estimates of the number of troops and number of days under combat conditions requiring use of emergency rations.

In addition to consumption, requirements estimates reflect regular working and special reserve stocks.<sup>3</sup> The military distribution

<sup>2</sup> See Appendix Note for outline of the various rations and their components.

<sup>3</sup> Regular reserve requirements, for a particular storage point in the supply system, at the end of time-interval  $T = R \sum_{v=T+1}^{T+K} Iv$ .  $K$  = the number of time-intervals for which planned future issues can be provided by the reserve; and  $Iv$  = issues anticipated to be made during time-interval  $v$ , in units of pounds (or some other physical measure).  $Iv$  may reflect issues for consumption requirements (see footnote 1), and/or issues to build up reserves in other storage points in the supply system.

system, often referred to as the "supply pipe-line," is a complicated and extended network of reservoirs and supply lines. In this country, the supply pipe-line reaches from producer or manufacturer to the procuring depot or market center, and through distribution depots to camps which are the consumption points. For some items, like flour and sugar, supplies are often shipped from the manufacturing or processing plant directly to large camps. To supply troops overseas, the pipe-line extends from manufacturer to the procuring depots, on to "filler" depots or port market centers. "Filler" depots are designated as storage points upon which ports of embarkation requisition to fill overseas orders. From the ports of embarkation the pipe-line reaches to overseas base-depots, then on to intermediate and forward depots or distribution areas, and finally to the troops. The pipe-line may be visualized as a gigantic water system with a set of pressure valves which may be regulated to control the flow between the successive storage points so as to maintain a smooth flow of supplies to the troops.

Supply levels, in terms of specified number of days of future issues, are higher for theaters than for troops in this country. This reflects not only the longer pipe-lines to the theaters but also the accepted practice of decreasing the risk of depleting theater stocks. Generally, supply or reserve levels vary inversely with the perishability of the item, with the exception of bulky staples, such as flour and sugar, for which a steady flow can be maintained directly from processors. For highly perishable items such as fluid milk, ice cream, fresh fruits and vegetables, and certain fresh meats, no reserves are carried; thus, net requirements are equivalent to consumption requirements.

The levels at which reserves, in the respective points of the supply pipe-line, should be maintained involves problems in logistic policy, statistical analysis and the allocation of resources. Analysis of variations in frequency and magnitude of rates of issues into and from the supply points enables the building up of statistical formulae to determine "appropriate" levels of reserves. But basically, a decision must be made as to the maximum calculated or intuitive risk which the supply agency is willing to assume. Usually those individuals directly responsible for subsisting the troops desire and tend to act so that the risk of "not being able to supply" is at a minimum, whereas other individuals may tend to argue for the feasibility of decreasing Army reserves so that a larger proportion

of over-all available supplies can be channeled into civilian or non-Army outlets. Such a divergency of opinion existed during a large part of the war period. Complete synthesis was not attained because of the difficulty in agreeing upon the marginal risk to be assumed in subsisting troops as compared with the marginal need of non-military claimants on available resources. It may be noted, however, that the champions of civilian requirements did not maintain that the armed forces should not receive "enough." Rather, they argued that "enough" was less than what the armed forces were receiving, or Army reserves were maintained at levels higher than necessary to insure a dependable and smooth flow of subsistence to the troops.

Reserve levels both for troops in this country and in the theaters were gradually reduced during the period prior to V-E day. An indication of such reduction is shown in the following tabulation.

ARMY FOOD SUPPLY LEVELS FOR NONPERISHABLE FOODS\*  
(Excluding seasonal reserves and in terms of days of future issues)

	1st half 1943	1st quarter 1945
For troops in United States (at Army depots and camps)	90 days	75 days
For troops overseas (at United States depots and ports)	68 days	60 days
(at overseas depots and ports)	108 days	70 days

\* Source: U. S. War Dept. Press Release, April 4, 1945.

The reductions resulted from improved analyses of operating data and experience, and trial-and-error adjustments, although pressure from non-military agencies and allocation bureaus undoubtedly accelerated the downward revisions.

Supplementing the regular working reserve levels, noted above, additional stocks known as seasonal and production reserves are carried for some items. Seasonal reserves are carried for commodities which are produced seasonally, for example, canned fruits and vegetables, dehydrated fruits and vegetables, canned fish (and some meats), and dairy products, such as cheese, butter, canned milk and whole milk powder. The seasonal reserves are depleted as the season progresses; thus they serve to close the supply gap between production periods. Seasonal reserves, moreover, result

from advance procurement; they reflect the timing of procurement during the year rather than an increase in the year's total procurement.

Production reserves, carried for a limited number of items, are maintained to provide stocks which can be drawn upon in event there occurs an extended break in the flow of supplies from the producing areas or manufacturers. Examples include failure to receive coffee from Latin America due to submarine activity in the Caribbean, or a stoppage in the receipt of specialty products, such as type "C" biscuit, due to a strike or lockout in a plant which produced a large proportion of the production. Whereas regular reserves are carried to counteract "normal" variations in the frequency and amplitude of issues and receipts, production reserves act as a cushion against unusual stoppages in receipts from producers.

The pyramiding of the various types of reserves is illustrated by the following hypothetical example for a single item. The strength and consumption rates, shown in the second and third columns, respectively, are combined to obtain the consumption requirements

Calendar Month	Monthly Strength (In man-days)	Consumption or Issue Rate (Per 1000 man-days)		Monthly Consumption	Regular Reserves <sup>a</sup> (Month-end)	Production Reserves <sup>b</sup> (Month-end)	Total Reserves (Month-end)
		millions	hundreds lbs.	millions lbs.	millions lbs.	millions lbs.	millions lbs.
Jan.	150	2.0		30.00	71.00	52.50	123.50
Feb.	170	2.0		34.00	79.90	58.45	138.35
Mar.	185	2.0		37.00	88.00	65.45	153.45
Apr.	195	2.2		42.90	96.70	70.90	167.60
May	205	2.2		45.10	109.32	80.46	189.78
June	215	2.4		51.60	121.56	89.64	211.20
July	222	2.6		57.72	124.42	94.13	218.55
Aug.	228	2.8		63.84	117.46	89.02	206.48
Sept.	233	2.6		60.58	109.68	83.28	192.96
Oct.	237	2.4		56.88	100.80	76.80	177.60
Nov.	240	2.2		52.80	96.00	72.00	168.00
Dec.	240*	2.0		48.00	96.00	72.00	168.00

\* Strength continues at same level.

<sup>a</sup> 60 days of future issues.

<sup>b</sup> 45 days of future issues.

given in the fourth column. As an example, consider November during which an average strength of 8 million men are subsisted;



this is equivalent to the 240 million man-days shown in the schedule, since each man is fed 30 days in the month. With each 1,000 men consuming 220 lbs. of the item, during November, the month's consumption amounts to 52.8 million pounds. Consumption requirements for the remaining months are computed in a similar manner. In the illustration, there is a seasonal variation pattern in consumption as indicated by the consumption rates. Seasonality in consumption for various items, such as fresh and canned fruits and vegetables, is reflected in requirements computations. The seasonal patterns were determined, and checked periodically, by analyses of consumption issues at posts, camps, and stations.

The regular reserves, column five of the schedule, are shown as of the end of the respective months and are equivalent to the consumption issues of the following two months since the authorized reserve level is assumed to be 60 days. For example, regular reserves at the end of January equal 71 million pounds or consumption issues during February and March. If the authorized reserve level were assumed to be 90 days, month-end reserves for January would have been 113.9 million pounds or consumption issues for the February-April period. The authorized reserve-level, in terms of number of days of future issues, reflects policy decision of the General-Staff and is subject to change only with its approval.

The production reserves in the illustration are constructed in a manner similar to that for the regular reserves, with the exception that the basis is 45 rather than 60 days of future issues. It is noted that for some items the production reserve is equivalent to an absolute quantity which is invariant with respect to changes in monthly consumption. Whether the production reserve is stable or variable and a function of future issues is also a matter of General-Staff policy.

The above simplified example illustrates the relative importance of the consumption and reserve elements. With a rapidly expanding strength or accelerated deployment to theaters, procurements which may appear large in relation to strength are necessary to fill the pipe-line to its authorized level. Thus a doubling of strength does not necessarily mean a doubling of requirements; deployment of strength, reserve levels for the various theaters, and consumption rates influence the result.

The sum of the "gross requirements" elements is balanced against assets to obtain "net requirements." The primary asset

element is the "stock-on-hand" figure, which represents accountable inventories in all supply points in this country and stocks in and in-transit to the theaters. Difficulties were encountered in obtaining reliable estimates of theater inventories; not until several months after a theater is established is a reliable accountability system developed and adequate working estimates obtainable as to theater stocks on hand. In situations where the theater is a rapidly expanding one, such as the European continent and the Southwest Pacific area, reliable estimates as to inventories may not be available until their usefulness is greatly decreased by their obsolescence. In cases where adequately up-to-date theater stock data are not available, the usual recourse is to assume that the reserves are at their authorized level, a procedure which is over-conservative in a static or diminishing theater but fraught with danger in a rapidly expanding one. It is in connection with theater inventory information that the greatest and most serious gap existed in data basic to requirements estimation.

With respect to subsistence, overseas procurement was an important source of supply. The utilization of theater indigenous supplies saved ocean shipping space, reduced the drain on tight supplies in this country and offset our lend-lease shipments. The magnitude of overseas procurement varied widely among theaters, but its significance may be indicated by the situation in the Southwest Pacific area where during one period approximately 90 percent of our subsistence needs in that theater were obtained through reverse lend-lease. Periodic reports from theater commanders made available data on supplies obtained and expected from local procurement or reverse lend-lease. In determining requirements to be procured from production in this country, credit was given for the quantities which the theater commanders reported would be obtained in their commands. For those areas or items where supplies anticipated to be made available through local procurement or reverse lend-lease generally exceeded the amounts subsequently delivered, the amounts of overseas procurement credits had to be estimated conservatively so that only credits which would be realized would influence the procurement to be made in this country.

The volume of Army subsistence procurement expanded very rapidly during 1944, when purchases (measured in dollar volume) were about 80 percent greater than in 1943; during 1945 there was an expansion again when purchases amounted to 216 percent of the

1943 value. Such tremendous volume was procured not only to meet Army requirements but also those of other groups for which the Army had procurement responsibility. As the following schedule indicates, about one third of Army subsistence procurement was for groups for which the Army acted as procurement agency.

## COMPOSITION OF ARMY FOOD REQUIREMENTS\*

(Based on dollar values of program as of February 1, 1945)

Army troops.....	62.5%
Procured for Navy (excluding direct Navy purchases).....	5.6%
Prisoners of war (United States and abroad).....	8.4%
Allied troops (supplied from United States Army stocks).....	4.2%
Civilian employees (employed by Army overseas).....	1.6%
Liberated civilians (in foreign countries).....	17.7%
	<hr/>
	100%

\* Source: U. S. War Dept. Press Release, April 4, 1945.

The 100 percent total in the above schedule represented about 280 billion pounds which approximated 12 percent of the total allocable supply available for distribution to the various claimant agencies.

The distribution of Army procurement requirements by major commodity groups during the peak of military activity is indicated as follows:

ARMY PROCUREMENT REQUIREMENTS AS PERCENT OF  
TOTAL ALLOCABLE SUPPLY

(Estimates as of March, 1945)

Fats and Oils (Excluding butter).....	10%
Sugar (Refined basis).....	12%
Poultry (Dressed weight).....	14%
Butter.....	16%
Pork.....	19%
Beef, Veal, Lamb, Mutton.....	25%
Vegetables and Juices (Canned).....	46%
Milk, Evaporated.....	49%
Fruits and Juices (Canned).....	56%
Fish (Canned).....	64%
Rice (Milled basis).....	102%

The preceding percentages reflect Army procurement requirements in relation to the total supply (United States) which was estimated as available for allocation to the several claimants. The percentages do not indicate the allocations requested by the Army to meet its estimated requirements. For some items, for example, rice, a significant proportion of Army requirements were obtained by purchases or reverse lend-lease in the theaters. Moreover, the Army

procurement requirements, on which the preceding percentages are based, include needs for non-Army direct use such as issues to Allied troops, prisoners of war, and liberated civilians. The requirements for liberated civilians resulted in the relatively large proportion for rice.

Over-all revisions in subsistence requirements estimates were made monthly for all major items and at least quarterly for minor ones, and even more frequently if necessary to reflect changed plans in strength or its deployment. Furthermore, special programs were developed at request of the Department of Agriculture and the Office of War Mobilization and Reconversion. Individual items were continuously reviewed, with analysis of actual issues in relation to planned issues. Major deviations from planned issue trends resulted in recomputation of the requirements. By frequent periodic over-all revisions, supplemented by continuous checking of experience against planned programs and reworking of particular items, the subsistence requirements program was made extremely flexible. This flexibility and sensitivity, however, had also serious disadvantages. If crop production goals were set, based to a large extent on military requirements, an increase in such requirements was difficult to fulfill from expanded production. This was a feature which made the coordination of subsistence requirements planning and production planning much more difficult than the corresponding problems in industrial products.

Subsistence requirements estimates were reviewed "through channels" in several Army offices prior to their establishment and approval as the official figures on which allocations would be requested and procurement based. After "Army approval," the estimates were forwarded to War Food Administration for its use in production and allocation planning.

The Army presented its requirements to the War Food Administration for consideration along with the claims of other agencies. W.F.A. (Requirements and Allocation Control Branch) prepared a preliminary analysis outlining the balance of total claims against total estimated available supply. Commodity subcommittees of the Food Requirements and Allocation Committee (F.R. and A.C.), of W.F.A.<sup>4</sup> developed a proposed domestic allocation. If a deficit

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<sup>4</sup> The Food Requirements and Allocation Committee of War Food Administration includes representatives of: W.F.A.; O.P.A.; F.E.A.; W.S.A.; W.P.B.; State Dept.; Navy; and the Army.

existed, it was eliminated by one or more of the several claimants agreeing to a revision of its requirements. The proposals of the commodity subcommittees were given to the F.R. and A.C. which either accepted the proposals or returned them to the subcommittee for adjustment or revision and resubmission. When the proposed domestic allocation was approved by F.R. and A.C., it was submitted to the War Food Administrator for signature, and then became the official domestic allocation. For those items under international allocation, the commodity subcommittees prepared a proposed "U. S. Position," which indicated the position likely to be taken by U. S. representatives on the Combined Food Board,<sup>5</sup> whose function it was to allocate "world" supplies. When the "U. S. Position" statement was approved, the U. S. representative on the Combined Food Board was authorized to bargain according to the indicated position.

To effect official domestic allocations, the War Food Administration utilized several types of orders. The "set-aside," used for canned fruits and vegetables, certain types of meat products, canned fish, and some dairy products, essentially is an order which requires processors to reserve a specified proportion of their output for exclusive sale to stated government agencies. For some items, such as dried milk, cocoa beans, and certain spices, processors (or importers) are allocated specified quotas for sales to civilians, and all additional production or imports must be sold to specified government agencies. "Restriction orders" limit the use of raw materials in products deemed less essential so as to conserve their availability for use in more essential items. Thus, ice-cream production was limited to a certain percentage of that produced in a base period, conserving more milk and cream for use in manufacture of butter, cheeses and canned milk.

The success attained in determining military subsistence requirements is difficult to evaluate. If "success" is measured by a comparison of forecast requirements (say, a year in advance) with subsequent actual procurement, the result would be not too unfavorable in the aggregate, although there would be large deviations for selected items. However, such a comparison would not be really

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<sup>5</sup> The Combined Food Board consists of the head of the British food mission to U. S.; the Canadian Minister to U. S.; and U. S. War Food Administrator. The Board was concerned only with items under international allocation, and the major items allocated by it were sugar, wheat, fats, and meats.

valid as a measure of success since strategic and corresponding logistical plans were varied within the year so that the requirements were revised accordingly. Both the requirements estimates and planned procurements were changed through an iterative process. The high priority given military requirements by the allocation agency (W.F.A. or C.F.B.) helped to assure that planned military subsistence requirements would be met by allocations. Thus, to the extent that actual procurement and planned requirements were out of line, the typical case is that either the latter were originally overestimated at the time the program was determined, or some of the contingencies provided for by the program did not occur.

A consistent bias in overestimating subsistence requirements is important since it leads not only to the military supply service carrying stocks larger than those which *ex-post* experience showed were necessary but it tended to deprive other claimants, such as the civilian population, of the corresponding amount of subsistence. From the planning and *ex-ante* view, however, there is no choice between planning to have too much, just enough, or not quite enough. The nicety of marginal analysis and its preciseness is an analytical objective not attainable in practice. In planning for military needs, where the price of not having food for soldiers is incalculable, the tendency is to forecast with caution. With recognition given to military risks which cannot be calculated with precision, there is a conscious tendency to determine requirements so that they will not only be adequate if the strategic and logistical plans are perfectly correct, but also adequate in the event military or supply fortune takes a turn for the worse.

One of the costs of victory in the field is subsistence "surplus" in the pipe line. But such surplus is apparent rather than real since it is not useless in the sense that ammunition or obsolete aircraft are so. A subsistence pipe-line "surplus" is quickly offset by a corresponding reduction in contracts and procurement. The Army eats into its stocks, depleting them to desired levels. This is attested to by the fact that, with the exception of special items such as emergency rations, military surpluses of subsistence do not exist as in ordnance, aircraft, or other "hard" items. Within a relatively short time after V-J day, Army subsistence stocks were depleted to the extent that requirements and procurement plans called for the Army's entering into procurement contracts to meet current and prospective food needs.



During the several years which elapsed between the inauguration of the Selective Service Act and V-J day, there gradually were developed methods, techniques, and data for determining military subsistence requirements which were adequately accurate for operating purposes. Consumption rates, based on actual issue data, were developed for various geographical and climatic areas; forecasting methods were devised and improved; review and revision procedures were perfected; and a system was developed for integrating Army subsistence requirements with those of other claimant groups so that over-all allocations might be effected where necessary by the allocation agency. Such developments were not perfected in a laboratory and tested in a pilot plant prior to application in the field; urgency and circumstances called for "learning the plays and signals while the game was going on."

*Appendix Note: Types of Army Rations*

*Type A Field Ration* ("domestic" ration): The standard for troops subsisted in organized messes in posts, camps, and stations in continental United States. Based on a "master menu" issued monthly by the Quartermaster General, and includes a complete *recommended* menu for breakfast, dinner, and evening meal for each day of the month. Used as a requisition and nutritional guide, rather than followed precisely by each installation, which is encouraged to take advantage of and substitute fresh items (fruits, vegetables, meats) available in season and locally. Objective is to have all meals at least nutritionally equivalent of master menu, and not necessarily identical with it.

*Type B Field Ration* ("overseas" ration): The specified food components of organized messes not having available regular supply of fresh items. A limited Type A ration of nonperishable components. Made up of about 125 items which are supplemented, when feasible, with fresh and frozen items.

*Type C Field Ration*: A combat ration for use by individual soldiers where mess facilities are not present. Each "C" ration contains six cans; three are meat products and the remaining three contain biscuit, or cereal, and a drink. Ten varieties of canned meats are available and issued in turn; they include ham and eggs, meat and beans, chicken and vegetable stew, meat and noodles, frankfurters and beans, pork and rice, meat and spaghetti, meat and vegetable stew, ham and lima beans, pork and beans. Also,

there are six forms of canned biscuit or cereal, i.e., various combinations of biscuit or cereal with sweets. "C" ration also includes a kit of chewing gum, matches, cigarettes, and water purification tablets.

*Type D Field Ration:* An extreme emergency combat ration, for use when no other means of securing food exists. Highly concentrated four-ounce bar made up of chocolate, sugar, powdered milk, cocoa fat, oat flour, and vanillin fortified with Vitamin B<sub>1</sub>.

*Type K Field Ration:* Originally developed for use by paratroopers as a substitute for "C" ration because of latter's weight and bulk. Quickly gained popularity with all troops. Made up of three waterproof packets (1½ lb. each) marked "breakfast," "dinner," or "supper," respectively. Breakfast unit includes "K" biscuits, can of egg-meat product, fruit bar, coffee, sugar, cigarettes, and gum. Dinner unit includes "K" biscuits, can of cheese product, caramels, fruit juice powder, sugar, cigarettes, matches, candy, and gum. Supper unit includes "K" biscuit, can of meat product, chocolate bar, bouillon powder, cigarettes, and gum. Similar to Type B ration in variety, but prepared so can be used cold or warm, and not requiring use of mess equipment.

*Ten-in-One Field Ration:* For use in zone between rear areas (where "B" ration is used) and the front lines (where "C," "K," and "D" rations are used). Includes subsistence for ten men for one day. Packed in 45 lb. cases, each marked as to its contents, and so constituted that each man may have fifteen consecutive meals without repetition of variety combination. Also includes cigarettes, matches, salt, water purification tablets, can opener, toilet soap, and paper towels.

*Expeditionary Force Menu No. 1, Tropical and Temperate Areas, and Expeditionary Force Menu No. 2, Frigid Areas:* Adaptations of master menu (basis of Type A rations) for overseas use to meet extreme climatic conditions.

*Army Air Force Rations:* Special rations for emergency use of Air Force personnel. *Combat Lunch*, used by Air Transport Command for in-flight feeding. *Life Raft Ration*, components constituted to conserve body fluid, and simultaneously supply energy. *Pocket Lunch*, includes energy foods (hard candy or gum, fudge or chocolate bar) packed in small box for flier's pocket. *Parachute Emergency Ration*, for use by "bail-out" fliers; contains concentrated energy foods packed in a can which is carried in pocket.

## PRODUCTION FUNCTIONS FROM A RANDOM SAMPLE OF FARMS\*†

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OVER a period of several years production functions have been derived for data from various sources. Douglas and associates made studies for manufacturing industries in several countries and under varying economic conditions.<sup>1</sup> Interesting similarities and contrasts were observed between sets of data even where the same function was used. Two functions have been derived from business data for individual farms. Both of these, however, were for farms above average in respect to the scale of operations and the techniques employed.<sup>2</sup> Somewhat different statistical results might be expected for an average group of farms.

There are many unsettled questions relating to the interpretation of production functions for firms employing various techniques and combinations of product. Yet little progress could come about were not new methods explored. Statistics for a random sample of farms are presented in this study. The results are of interest in themselves since they indicate returns under more representative conditions. However, it is hoped that the following brief interpretation and discussion of the results will lead to further explorations in the applicability of and limitations to this or related methods of analyzing farm business data.

### *Classification of Inputs*

The production functions described in this study were derived from a random sample of Iowa farms for the year 1939. The original

\* The author is indebted to O. H. Brownlee and Gerhard Tintner for many helpful suggestions.

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<sup>1</sup> Studies of American manufacturing industries include: Paul H. Douglas and Grace T. Gunn, "The Production Function for American Manufacturing in 1919," *American Economic Review*, Vol. 31, March, 1941, pp. 67-80. Paul H. Douglas and Grace T. Gunn, "The Production Function for American Manufacturing for 1914," *Journal of Political Economy*, Vol. 50, August 1942, pp. 595-602. Paul H. Douglas, Patricia Daly and Ernest Olson, "The Production Function for Manufacturing in the United States, 1904," *Journal of Political Economy*, Vol. 51, February, 1943, pp. 61-65.

<sup>2</sup> Gerhard Tintner, "A Note on the Derivation of Production Functions From Farm Records," *Econometrica*, Vol. 12, January, 1944, pp. 26-34. Gerhard Tintner and O. H. Brownlee, "Production Functions Derived from Farm Records," this *Journal*, Vol. 26, August, 1944, pp. 566-571.

data were collected by the survey method during January of 1940 and included beginning and closing inventories as well as a record of operations and transactions for the previous twelve months. The design of the sample was such as to give unbiased estimates of certain livestock and crop inventories and production.<sup>3</sup> Inventory estimates for most categories of resources used also should be unbiased. However, there is likely some memory bias for such items as income and expenditure.<sup>4</sup> On the basis of previous studies the sample fairly well indicates the input of resources but slightly underestimates total output of product.

Input of resources and output of product have been classified partly on an *a priori* basis and partly on the basis of a preliminary analysis. The categories of variables are as follows:

1. Real estate (A) is measured in dollars and includes the value of both land and improvements. These two types of assets were included as one agent of production since in the enumeration the operator's estimate of land value was undoubtedly affected by the number and condition of the buildings on the farm. Errors in the evaluation of real estate are probably greater than for any other asset since only a small fraction of the farms are on the market in any one year. However, the use of dollar value as a measure of real estate input has an advantage over the acre measurement in that it allows variations in the productivity of the resource from farm to farm. It also allows some comparison as to the degree of under-evaluation or over-evaluation of land in varying productivity groups.

2. Labor (B) is measured in terms of months and includes hired labor, operator labor and other family labor. This measure ignores variations in the quality of the labor and it does not differentiate between a month of labor which includes sixteen hours per day and one which includes only eight. Neither does it allow comparisons of the productivity of labor used at different times of the year. Although dollar values were available for hired labor, no such common denominator was available for expressing the value of family and operator labor.

3. Machinery and equipment (C) expressed as the dollar value

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<sup>3</sup> Gesson, Raymond G. "Statistical Investigation of a Sample Survey for Obtaining Farm Facts," Iowa Agr. Exp. Sta. Bul. 304, June 1942.

<sup>4</sup> Hopkins, John A. "Statistical Comparisons of Record Keeping Farms and a Random Sample of Iowa Farms for 1939," Iowa Agr. Exp. Sta. Bul. 308, October 1942.

of the beginning inventory and also includes the value of machinery repairs, fuel and lubricants used during the year. These items were all considered as independent categories of inputs in a preliminary analysis but were combined in one category because of a high correlation between individual items.

4. The value of livestock on hand and purchased, livestock expense and feed fed to livestock have been combined into one category of inputs (D). The decision to combine livestock and feed was also based upon the preliminary analysis which indicated a high degree of association between the two items.

5. Cash operating expense (E) includes such items as fertilizer, twine, custom work and other such miscellaneous operating expenses not already designated. This category obviously includes a heterogeneous lot of resources none of which clearly falls in any one of the groups listed above. For example, it is hard to make a distinction in the case of custom work where part of the rate charged is for labor furnished with the tractor or the machine, part for the machinery itself and part as a premium for the risk involved or as a quasi-rent on a scarce implement. Neither did it seem feasible, in an *a priori* classification of resources, to include these expenses in single categories of inputs.

6. Total product (X) is the sum of cash sales, home consumption and inventory increases growing out of the years' operations. Although it is questionable, government payments have been included as part of this product.

The regression equation used is a function which is linear in the logarithms. It is the same production function employed by Douglas in later studies of manufacturing industries. This function has been used since (1) the regression coefficients immediately give the elasticities as they indicate the percentage change in output which will, on the average, result from a one percent increase in the input of various factors and the elasticities are independent of the unit of measurement, (2) it permits the phenomena of diminishing marginal returns without using too many degrees of freedom (3) assuming that the errors are small and normally distributed, such a logarithmic transformation of the variables will presume to a substantial degree normality in the distribution of errors in the data and (4) some comparisons can be made between the results for this random group of farms and those included in a previous study. The function also implies substitutability between various produc-

tive agents. A linear function allows variation in elasticities over the range of the data but does not permit the phenomenon of decreasing returns to come into evidence. A quadratic function, while allowing decreasing returns, would require more than twice as many regression coefficients and hence substantially diminish the number of degrees of freedom.<sup>5</sup>

A function has been derived for each of several subgroups of farms as well as for the state sample. The farms have been divided into five groups on a basis of location within the state. These groups correspond to the five type of farming areas: Northeast Dairy, Cash Grain, Western Meat, Eastern Meat and Southern Pasture. The separation of areas was made in order to examine the returns to specific resources used on land in varying productivity groups and for areas with varying combinations of land, labor and other resources. Statistical results are also presented for five types of farms—crop, hog, dual purpose and dairy, general, and special farms. Data were also computed for cattle feeding farms but due to a limited sample and lack of significant statistical results, they have not been included. Finally, the total sample has been broken into groups on the basis of scale of operations. Total capital was used in making the division between “large” and “small” farms. This break-down was made to test the hypothesis that better managers are found on larger farms and also that there might be a range of increasing as well as decreasing returns to scale.

### *Results*

Multiple correlation coefficients are presented in table 1. All of these are statistically significant at the 1 percent level of probability (probability less than 1 percent that correlation as high as these could have arisen by chance if the true correlation coefficients in the hypothetical population were zero). The adjusted coefficients of multiple determination indicate the percentage of the variance in total product associated with the independent variables.

For the entire sample 78.77 percent of the variance in output is associated with quantities of resources used. The figure is smallest for crop-type farms where only 67.8 percent of the variability of the logarithms of the product are “determined” by the independent variables. The percentage is greatest for special and

<sup>5</sup> Gerhard Tintner, “A Note on the Derivation of Production Functions from Farm Records,” *Econometrica*, Vol. 12, January 1944, pp. 26-34.



dairy and dual purpose farms. The "unexplained" portion of variance in total product can be partly attributed to variations between farms in respect to techniques employed, weather conditions and perhaps to some extent, prices received for products. Part of the variance not "explained" by input of resources may also grow out of errors in reporting the original data.

On the basis of the comparison between "large" and "small" farms the distribution of variance for the total product is heteroscedastic over the range of inputs; a smaller percentage of the variance in the dependent variable is explained by the independent variables for the "small" than for the "large" farms. A study based

TABLE 1. MULTIPLE CORRELATION COEFFICIENTS

Farm group	Size of sample	Multiple correlation coefficient	Adjusted coefficients of multiple determination
Northeast Dairy	151	.9048	.8050
Cash Grain	147	.8894	.7835
Western Meat	146	.9074	.8170
Southern Pasture	133	.8750	.7565
Eastern Meat	161	.8606	.7323
Crop	82	.8354	.6780
Hog	176	.8634	.7380
Dual purpose and dairy	177	.9021	.8083
General	145	.8593	.7290
Special	122	.9030	.8074
"Large"	369	.9421	.8787
"Small"	369	.7847	.6107
All farms	738	.8882	.7877

on the "large" farms alone would thus lead to the erroneous conclusion that scale of operations is relatively more important in "determining" total product than actually holds true on all farms or for "small" farms.

#### *Elasticities*

The regression coefficients shown in table 2 are the elasticities for the individual factors of production. They show approximately the average percentage change in total product which might be forthcoming if the input of any one resource is increased by 1 percent. For all farms, a 1 percent increase in feed and livestock in-

vestment (D) is associated with an increase of about .4767 percent in the total product. In each classification of farms diminishing marginal returns is indicated for individual production factors since in each case the elasticity is less than one.

TABLE 2. ELASTICITIES (REGRESSION COEFFICIENTS)

	Land A	Labor B	Equip- ment C	Livestock and feed D	Misc. operating expense E	Total
Northeast dairy	.2081*	-.0449	.0871**	.6136**	.0223**	.8862
Cash grain	.3425*	.1131	.0757**	.4115**	.0174**	.9502
Western meat	.1037**	.0107	.0888	.5511**	.0310**	.7853
Southern pasture	.1624*	-.0508	.1325	.4944**	.0438**	.7823
Eastern meat	.1918*	.2364	.0952	.4263*	.0245**	.9742
Crop	.2412*	-.0748	.0761**	.5294	.0166**	.9381
Hog	.0691*	.0209	.0965	.7449**	.0343**	.9657
Dual purposes and dairy	.1029	.0074	.0636	.6294**	.0178**	.8211
General	.1737**	.1192	.1586*	.4555**	.0302**	.9372
Special	.2970**	-.0070	.1097**	.3512**	.0379**	.7888
"Large"	.2814**	.0001	.1126**	.5378**	.0286**	.9605
"Small"	.2131**	.0482	.0843**	.4271**	.0324**	.8051
All farms	.2316**	.0282	.0844**	.4767**	.0317**	.8526

\* Significant at 5 percent level.

\*\* Significant at 1 percent level.

Some negative elasticities are shown in table 2. It is hardly conceivable that total production would decrease were more of any individual factor employed. None of the negative elasticities shown in table 2 are statistically significant at the 5 percent level of probability. Hence negative elasticities of the magnitude shown could have arisen with a probability of more than one in twenty even if the true population elasticities were zero.

The sum of the elasticities shown in table 2 are also indicative of returns to scale. A sum of elasticities equal to one indicates constant returns to scale since an increase in all factors of production by a given percentage will increase output by the same percentage. A sum of less than one indicates diminishing returns to scale while a sum greater than one indicates increasing returns to scale. In every case the sum of the elasticities is less than one and thus denotes diminishing returns to scale since an increase in the input of all resources by 1 percent would result in an increase in total product of less than 1 percent.

Previous studies in which the same function was used also indicated diminishing returns to scale. However, since the farms analyzed in these studies were large farms, the possibility existed that this relationship did not hold true for a sample of all farms. Or it might also be true that although the function used indicated diminishing returns for all farms, increasing returns might hold for small farms while decreasing returns holds for large farms. Accordingly, as a partial test of this hypothesis, the sums of elasticities were computed for the "large" and the "small" farms as defined in our sample. Although both the classification of "large" and "small" farms and the method of comparison are somewhat arbitrary, diminishing returns are indicated in both cases.

The statistical results of this study showing diminishing returns are somewhat at variance with the type of analyses which relates management or labor income to scale of operations; management or labor income when computed as a residual for the data being analyzed varies directly with scale of operations. Increasing returns were thus suggested. This difference in results may grow partly out of limitations of either type of study. As will be pointed out later, a comparison of the relation of such residuals as management or labor income to scale of operations may be misleading depending upon the computational procedure used and possible divergences between market prices and the productivity of resources employed. On the other hand it is difficult to explain the degree of diminishing returns suggested by the sum of the computed elasticities.

### *Management*

Management has not been included along with other inputs since there is no objective measure of this productive agent. The results might well have differed had it been possible to measure the input of this factor for our sample. It is the common judgment that the better managers are found on larger farms. Accordingly, the true outcome for our study would differ depending on whether the actual input of management for the farms studied increased, (1) at an increasing or (2) at a decreasing rate as the input of other resources or output of product increased by a given percentage. Were it possible to include management inputs, then the statistical results in case (1) would tend to show a greater degree of diminishing returns than those presented while case (2) would turn the results in the direction of constant or increasing returns. The inability to

TABLE 3. MARGINAL PRODUCTIVITIES AND FIDUCIAL LIMITS AT THE FIVE PERCENT LEVEL OF PROBABILITY (PER DOLLAR OF INPUT)

		Land	Labor	Equip- ment	Live- stock and feed	Miscel- laneous operat- ing ex- pense E
		A	B	C	D	E
All farms	mean	.0465	.0791	.2013	.8390	.3931
	upper limit	.0578	.2329	.2855	1.0772	.4320
	lower limit	.0351	-.0742	.1171	.6008	.3543
Northeast Dairy Area	mean	.0331	.0973	.1484	.6588	.3783
	upper limit	.0518	.3359	.2850	1.0723	.4493
	lower limit	.0144	-.1413	.0018	.2452	.3074
Cash Grain Area	mean	.0615	.1066	.1809	.4177	.3693
	upper limit	.0862	.1460	.3570	.6798	.4662
	lower limit	.0368	.0672	.0048	.1556	.2725
Western Meat Area	mean	.0382	.0302	.2410	.7130	.4037
	upper limit	.0791	.3207	.3930	1.2075	.4738
	lower limit	-.0027	.2603	.0890	.2185	.3337
Southern Pasture Area	mean	.0187	-.1091	.3133	2.6419	.4025
	upper limit	.0485	.1965	.5634	3.8121	.5160
	lower limit	-.0111	-.4146	.0631	1.4718	.2989
Eastern Meat Area	mean	.0398	.0685	.2147	.5012	.3407
	upper limit	.0657	.0891	.4473	.9738	.4159
	lower limit	.0140	.0479	-.0178	.0286	.2655
Crop	mean	.0447	-.2491	.1791	.2633	.6239
	upper limit	.0739	.2155	.5031	.7866	.8739
	lower limit	.1562	-.7137	-.1450	-.2601	.3739
Hog	mean	.0114	.0590	-.2293	.7890	.5457
	upper limit	.0304	.3902	-.0170	1.1891	.6371
	lower limit	-.0076	-.2722	-.4316	.3887	.4543
Dual and dairy	mean	.0201	.0211	.1380	.5389	.4637
	upper limit	.0434	.3105	.2989	.9445	.5318
	lower limit	-.0031	-.2682	-.0289	.1332	.3601
General	mean	.0201	.2815	.3404	.9913	.5469
	upper limit	.0561	.5725	.4981	1.6018	.4822
	lower limit	.0060	.0094	.1826	.3808	.2429
Special	mean	.0757	-.0209	.0404	1.5936	.4459
	upper limit	.1114	.3719	.0690	2.6319	.5856
	lower limit	.0400	-.4137	.0118	.5550	.3417
"Large"	mean	.0515	.0400	.2591	.4411	.4164
	upper limit	.0716	.2941	.4347	.6771	.4716
	lower limit	.0315	-.2934	.0835	.2051	.3611
"Small"	mean	.0468	.1030	.2084	1.4698	.3751
	upper limit	.0654	.2677	.3129	1.9869	.4321
	lower limit	.0282	-.0618	.1038	.9526	.3181

measure management inputs objectively is not, of course, a weakness common only to the type of analysis under consideration in this study. It is also possible that had management been included as an input, the sum of elasticities would not have been greater, but the elasticities for the individual production factors shown might have been smaller.

### *Marginal Productivities*

Marginal productivities for each group of farms are presented in table 3. These are estimated at the geometric means and are derived from the elasticities. The marginal productivities indicate approximately the return which might be expected on the average from the addition of one dollar's worth of the various productive agents.

When "large" and "small" farms are compared the marginal productivities for each type of resource except cash operating expense are found to be greatest on the "large" farms. This is consistent with the belief that in general the techniques employed on large farms are more productive than those employed on small farms. Furthermore, the high marginal productivity of cash operating expense for "small" farms may be explained in that this category of inputs includes fertilizers and other items which are needed for increased efficiency on many farms.

Differences in marginal productivities for land in the various areas of the state parallel that which might be expected. The figure is greatest for the Cash Grain area, the area which includes a large portion of the state's most productive land. They are quite similar for the Northeast Dairy, Western Meat and Eastern Meat areas. The lowest marginal productivity is found in the Southern Pasture area, the region of rough and less productive land. Since these marginal productivities relate back to the land value, it appears that relative to the rest of the state, land is over-capitalized in the Southern Pasture area and under-capitalized in the Cash Grain area. The marginal productivity of machinery is also greatest in the Southern Pasture area. At the time of the survey there were fewer modern machines here than in the other areas of the state. In every area the marginal productivities were high for the category of inputs which included livestock and feed fed to livestock. For farms grouped according to type, the marginal productivity of the machinery appears to be great for general and crop types of farm.

The return to labor is low for most of the farm groups shown. There are probably two reasons for this. One is that Iowa farms were oversupplied with labor at the time of the survey. The depression of the 1930's had perhaps held labor back on the farm to the extent that its marginal productivity was actually very low. Another explanation of this low return may be found in the manner in which labor inputs are reported by farmers. Although the input of hired labor may be reported accurately, there may be a large bias in that of operator and family labor. The operator is prone to report twelve months of labor unless he actually works off the farm. Included in this twelve months is the time actually spent at farming and also the slack months in which only a few hours of chore work are done each day. This latter limitation of the data is indicated in table 2 where most of the negative elasticities are for labor. Too, not a single regression coefficient for labor was significant at the 5 percent level.

The marginal productivity of cash operating expense was larger than for any other factor except livestock in the case of most farm groups. This may be partly explained by the fact that some items included in this group have a high marginal productivity and also partly, because this miscellaneous category includes twine and some similar items where the quantity used is dependent on total product.

Although classification of inputs and the measure of output are not exactly parallel, lower returns are indicated generally for the resources used by this average group of farms than was shown for a group of record keeping farms for 1939.<sup>6</sup> This is as expected since farmers who voluntarily join record keeping associations are ordinarily the first to adopt new techniques and improved production methods. On the basis of the production functions for the two groups the returns indicated for record keeping farms are hardly representative of those for all farms.

#### *Some Limitations*

Certain complexities arise in the fitting and interpretation of a production function for farm data. One of these has to do with the grouping of inputs into homogeneous categories. Certain factors

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<sup>6</sup> Gerhard Tintner and O. H. Brownlee, "Production Functions Derived from Farm Records," this *Journal*, Vol. 26, August, 1944, pp. 566-571.



are complementary in that they tend to be used jointly. Statistical results for any one of these taken individually have little practical significance. However, when the correlation is high for two or more factors, they should be combined and considered as one type of input. Since a preliminary analysis of the variables based on a subsample of farms indicated a high correlation between feed and live-stock, the two were included as one input in the final computations. Although not apparent in the preliminary analysis, other combinations might best have been made since the correlation was high between certain inputs within some of the farm groups studied. The need for these groupings was not apparent in the preliminary computations. Combination of these groups might even lead to further groupings.

The functions which have been derived in this study are of the interfirm rather than the intrafirm variety. Although they may be looked upon as averages for all farms, they do not necessarily coincide with that for any one farm. Some homogeneity has been introduced by grouping farms according to type or location. Even then it can be expected that a multitude of functions exists even with these groups because of the varying combinations of techniques employed and commodities produced.<sup>7</sup>

Comparisons of the statistical results have more meaning when made for an individual production factor between farm groups rather than when made between factors of production within one farm group. A comparison of the marginal productivity of land in the Cash Grain area with that of the Southern Pasture area, for example, should be suggestive of the difference in actual productivity. However a comparison of the statistical results for land and labor within an area is not as meaningful. This is true on the basis of the classification of resources used. In some cases the classification includes a complete accounting of inputs for the production period while in others it probably does not. Labor inputs were measured in months and thus correspond to the inputs for the year. Machinery inputs were taken as the dollar values of the inventory,

<sup>7</sup> See the following for discussion and treatment of the questions raised here: M. Bronfenbrenner, "Production Functions: Cobb-Douglas, Interfirm, Intrafirm," *Econometrica*, Vol. 12, January, 1944, pp. 35-44. M. W. Reder, "An Alternative Interpretation of the Cobb-Douglas Function," *Econometrica*, Vol. 11, July-October, 1943, pp. 259-264. Jacob Marschak and William H. Andrews, "Random Simultaneous Equations and the Theory of Production," *Cowles Commission Papers*, New Series, No. 5. Gerhard Tintner, "Multiple Regression for Systems of Equations," *Econometrica*, Vol. 14, January, 1946, pp. 5-36.

but the real input during the year is depreciation and related expenses. If straight-line depreciation held true the results would be substantially the same as if machinery inputs had been measured in terms of depreciation rather than inventories. A marginal productivity of twenty cents per dollar of machinery investment is equivalent to two dollars for each dollar of machinery depreciation on the basis of straight-line depreciation at ten percent. However when the depreciation is other than straight-line, the two are not necessarily parallel. The problem of the expense also enters in if one is trying to compare net productivities. The cost of labor, for example, can be used to represent the input of the factor. In the case of land (whether measured in the dollar value of land or its rental value) not all costs associated with the factor are expressed in the input. Taxes still must come out of the return.

### *Index of Efficiency*

If established that the best fitting function has been employed and that the classification of inputs and output allows a reasonably accurate expression of the relative returns on the various production agents, the general type of analysis employed above might serve as a useful tool in studies concerned with the productivity and allocation of resources. Perhaps it is not the final answer but it is in the direction of a refinement which is needed in the field of production economics or farm management. In this sense it has certain advantages over a somewhat similar procedure long employed in the analysis of farm business data.

An early problem which faced students of farm management or production economics was the measurement of farm profits. In attempting to determine the relative efficiency of various combinations of resources, they soon found that net farm income served unsatisfactorily as an index since (1) one farm may use unpaid family labor while another pays a wage for hired labor; (2) the tenant-operator shares net farm income with the landlord while the owner-operator receives the full amount; (3) interest is a debit in the accounts of the man who borrows capital while it represents part of the net income for the operator with a 100 percent equity in the business; and (4) any reflection of efficiency may be obscured on small farms because of the smaller volume of output. Accordingly, two measuses of profit, management return and labor income, were substituted for net income as an index of profits or

efficiency of resource combination. While there are slight differences, the two are substantially the same in respect to use and method of computation. Both are residual quantities computed by subtracting a charge for the resources employed from net farm income (or from gross profits with allowance for operating costs depending on the computational procedure). Resources are ordinarily charged at the market rates. If the residual quantity so computed is greater for one farm than for another, it is taken to mean that the resource combination is most efficient or productive on the first; (differences arising out of scale of operations and ownership of resources are supposedly eliminated).

This procedure assumes that the market rate for resources coincides, at a given time, with the productivity of the resources used in any one industry such as agriculture. Classically, equal marginal returns should hold true between industries in the long-run under competitive conditions; equal average returns should also hold true if capitalization of earnings and expectations are perfect. However, neither of these conditions need hold true in the short-run or for a dynamic economy in which expectations are imperfect and where competition does not have full reign. Even rental rates, a resource price determined in the agricultural industry, may deviate rather widely from the marginal productivity of land at any given time.

In the sense that an index of efficiency is needed for judging of the productivity of resources on individual farms or groups of farms, the most accurate single criterion would be a net profit figure computed on the basis of the actual productivity of resources used in agriculture rather than on the basis of market prices for resources. Otherwise the relative profitability of different enterprise and resource combinations cannot always be appraised properly. This is illustrated by hypothetical data of table 4. Column 1 shows the quantity of resources employed by each of five operators. Column 2 indicates their net incomes under a high level of prices (situation A) and column 3 indicates incomes under a low level of prices (situation B). (The simple regression  $Y = bX$  fits this data perfectly.) Under situation A the "actual" rate earned is 8 percent while under B it is 2 percent (average productivity equal to .08 and .02 respectively). Column 4 indicates the total charge against resources when an assumed market rate of 5 percent is used in computing "net profit" (labor income or management return). Columns 5 and 6 indicated the residual "net profit" when resources

are charged at the market rate under situation A and B respectively.

The data of table 4 has been established so that resource combination is equally efficient on all farms (the rates of return for individual farms are identical under each of the income situations). However, if resources are charged at market rates and the "net profit" so computed under situation A is examined (column 5),

TABLE 4. FARM EFFICIENCY WHEN MEASURED BY RATES EARNED AND MARKET RATES

Farm	Resources employed	Net income		Charges against re- sources at 5 percent	“Net profits” when resources charged at market price of 5 percent		“Net profits” when resources charged at “actual” rate earned	
		Situation A	Situation B		Situation A(a)	Situation B(b)	Situation A(c)	Situation B(d)
A	10,000	800	200	500	300	— 300	0	0
B	20,000	1600	400	1000	600	— 600	0	0
C	30,000	2400	600	1500	900	— 900	0	0
D	40,000	3200	800	2000	1200	— 1200	0	0
E	50,000	4000	1000	2500	1500	— 1500	0	0

(a) Column 2 minus column 4.

(b) Column 3 minus column 4.

(c) Column 2 minus charge for resources at 8 percent.

(d) Column 3 minus charge for resources at 2 percent.

resource combination appears most efficient for farm E. If the same method is applied and the data for situation B is examined (column 6), the resource combination of farm A appears least inefficient. Such conclusions are obviously incorrect. When the market rate is less than the actual productivity of resources, part of the return to other factors is imputed to the one receiving the residual. If the market rate is greater than the productivity the reverse holds true. The amount by which the return to the residual factor is overestimated (or underestimated) depends on the scale of operations for the farm.

For the example under consideration, columns 7 and 8 indicate the "net profit" computed by using the rates "earned" within the industry. In both cases the "net profit" is zero and one draws the correction conclusion that the resource combination is equally efficient for all farms.

When the rate earned on the resources employed in an industry differs from the market price of these resources, the "net profit" figure used in making comparisons should be based on the former rather than the latter if a true index of efficiency is to be obtained.<sup>8</sup> The technique employed here is a possible step in this direction. A function for which the variables accurately express the input of resources and output of product might be used in either one of two ways:

1. A function might be derived for each of the farming systems under consideration. The productivity of the individual factors could then be compared between groups. The sample would, of course, have to be large enough to allow sufficient degrees of freedom in each of the groups being considered. While of value in making comparisons of productivity for individual factors and between groups of farms, the procedure would not serve where there is need to compare the efficiency of any one farm with others. Neither would it always serve where there is a need to compare the total efficiency between groups of farms.

2. The product might be measured in the manner similar to that of this study and a function derived for the data of all farms. Using the coefficients so computed as an indication of the average productivity of resources, the actual product of the individual farm could be expressed as a percentage of that computed from the regression equation.<sup>9</sup>

This last step has an added advantage. It is still another refinement in removing differences which stem from scale of operations

<sup>8</sup> The rate at which resources are charged is not a problem in all cases where a residual "profit" figure is used. The market rate is, of course, the proper one of the income figure is to indicate the profitability of managing one's own resources as compared to hiring them out to other firms. The problem of the rate would also be unimportant if one were comparing farms which used approximately the same quantities of the various resources. It is a very important consideration, however, if management or labor income is being used to indicate the profitability of individual practices and if there is a considerable variation between farms in respect to scale of operations. Many studies have shown a high association between scale of operations and the extent to which individual practices are adopted. Accordingly, a management or labor return figure based on market prices for resources can easily over-estimate or under-estimate the profitability of individual practices or the relative returns from different scales of operation.

<sup>9</sup> It might appear that this procedure imputes nothing to management. However, the difference between the individual farm's actual return and that expected on the basis of "rates earned within the industry" reflects returns to management more accurately than a residual profit computed from "market rates" on resources employed. A percentage difference, while not attributing a specific amount to management, may be even more accurate in indicating the extent to which management is above or below average.

and which may thus obscure true indications of efficiency. Again this can be illustrated by a simple example: Suppose that the regression of product ( $Y$ ) on resources ( $X$ ) for all farms is  $.06(Y = bX)$ . Farm A with an input of \$10,000 in resources has an actual product of \$1000. ( $b = .10$  within the firm) while the corresponding figures for Farm B are \$40,000 and \$3200 ( $b = .08$ ). Had the productivity of resources on farm A and B been equal to the average of the industry, their respective products would have been \$600 and \$2400 respectively. Thus the product for A is \$400 greater and for B \$1200 greater than might be expected on the basis of the average productivity figure. From these figures B appears to be more efficient even though the rate of transformation is known to be greater for farm A. If the actual is expressed as a percent of the expected, however, we arrive at a different conclusion. Since the actual product is 167 percent of the expected on farm A and 133 percent on B, we arrive at the correct conclusion that the resource combination on farm A is more productive than that of B. By measuring the product in a manner similar to that of this study we also eliminate difficulties growing out of ownership of resources. On the one hand all resource inputs are included whether owned, rented or borrowed while on the other hand the return to the resource is not subtracted out as a debit in the case of hired labor, rented land or borrowed capital. The efficiency of resource combination is expressed in terms of gross product, but this is not a limitation. Obviously, the operator who realizes a gross product of \$1.40 for each \$1.00 of input will have a greater net profit than one who realizes only \$1.20. A regression equation for which the net product rather than the gross product is used would serve equally well as long as resource costs (whether owned, rented or borrowed) were handled in a comparable manner for all farms.

Whether the function or classification of variables which has been used here is best out of several alternatives is yet to be proved. However, the general method does have interesting possibilities in respect to the problem outlined.



## NOTES ON DEVELOPMENTS IN AGRICULTURAL POLICY AND PROGRAM IN THE UNITED KINGDOM\*

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SEVERAL current developments in United Kingdom agricultural policy and program should be of much interest in the United States. These include the programs for price supports and basing these on changing costs of production, the current plans to continue the controls of production and marketing, the plans to shift production toward dairying, and the new agricultural extension program.

### *Price Fixing and the Cost of Production*

Many will still have in mind how the British Parliament provided in 1919 for the guaranteeing of prices of farm products at cost-of-production levels and how twelve (now ten) costing centers were set up to compute these costs à la Orwin, and how this legislation was repealed when the bottom dropped out of farm prices presently, but not quickly enough to save the government from large payments to its farmers. And noting the recent developments in price setting in the United Kingdom, they may be wondering if United Kingdom history is not to repeat itself after this war. The present procedure is to review the prices of the various products in February of each year and adjust them for any changes in costs, the new prices to hold for the crop next to be harvested and the one following. Livestock and livestock product prices are reviewed at the same time and set for a twelve-month period beginning from April to July for the several products. The prices set are to call for efficiency and economy in methods of production and to be adjusted from year to year to take account of technological advances.

It is easy to see that such a directive could have led to the same attempts at determination of absolute unit costs of production as were made in 1920. The Ministry of Agriculture has avoided this by assuming, in essence, that prices and costs were in proper relation at the outset and has made price adjustments only for *changes* in costs.

As a matter of fact, the adjustments are based mainly on income

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rather than upon costs. The Advisory Centers, really research centers, in the ten "provinces" into which England and Wales is divided for record-keeping and related purposes, now have 2200 farmers keeping financial accounts. These provinces in turn are divided into 70 type-of-farming areas. Average gross incomes, expenses, and net incomes are calculated for each of these areas. The movements in the net income figures are one of the three sets of magnitudes used in the price reviews. Another set consists of the over-all receipts and expenses for all of England and Wales. The total receipts item is accurately determinable because the Ministry of Food buys all the farm products sold. The totals by provinces and areas are made to check with these national aggregates. This in fact usually means increasing the net incomes—the financial records kept by the individual farmers are considerably influenced by the expenses which the farmers report on their income tax returns. It should be apparent also that changing physical volume of output may also be a highly disturbing factor.

The Advisory Centers have continued the enterprise cost keeping à la Orwin which they began in 1920, although most of them have done relatively little of it. Cambridge has pushed this type of work as much as any of them, cost studies having been made in recent years for wheat, sugar beets, potatoes, barley and dairy products. The Ministry of Agriculture in setting prices, however, makes no *direct* use of the unit costs derived from such analyses. Instead, it uses only the percentage distribution of total acre or cow costs and the like among labor, land, equipment, buildings, feed, fertilizer, etc. These percentage distributions become the weightings applied to changes in farm wages, feed prices, fertilizer prices, etc., in estimating unit cost changes. It was at once discovered, however, that the total of cost increases thus calculated are likely to exceed the increase in the over-all national expense, because they do not allow for the current savings in costs achieved by mechanization and otherwise—it is in the nature of unit-cost data to be historical and hence out-of-date. Hence in practice the cost changes obtained by applying the weightings serve only as a basis for allocating the over-all expense among the products.

The three sets of data thus obtained are all fitted together in the manner indicated and laid on the bargaining table when the Ministry of Food meets with the representatives of the National Farmers' Union. The Union has access to all the data available to the

Ministry, and in addition is now assembling data and making analyses of its own. The only data not available to the general public are the national totals used as a final check. It is apparent that these serve a highly useful purpose in these price adjustments.

It should be apparent that the Ministry of Food has worked out an eminently sensible way of dealing with the problem facing it. Probably it has been helped in doing this because it had to face the reality of getting the farmers to produce the foods needed. There was no time or place for abstractions and arbitrary assumptions about unit costs of production. If the wages of labor rose, or prices of fertilizers, the farmer needed to be compensated for these increases if he was to continue his production.

In spite of the simplicity and directness of the procedures, however, not everything has been smooth sailing. Just now the National Farmers' Union is contesting vigorously the price increase allowed in the spring to compensate for an increase in wages awarded subsequent to the 1946 February review. The point at issue strangely resembles, with a British twist, a major issue in the United States. The Farmers' Union wants a further increase included to cover the farmer and his wife, and the Ministry of Agriculture has provided only for the hired labor and the labor of the farmer's boys and girls. The Ministry makes two replies, one that the prices are to cover cost changes only, and the other that there are already serious anomalies in the price structure arising from awarding the same increases to widely different systems of farming in different parts of England and Wales, and producing with different proportions of labor and equipment, and especially between large and small farms, and that to include wage increases for the farmer and his wife will magnify these anomalies. Nevertheless, the matter is on the bargaining table at this writing.

The levels of prices fixed for the different products, expressed in dollar figures at the September rate of exchange (\$4.04), and in terms of United States standard weights per bushel, may be illustrated by the following for 1947 harvested crops: wheat \$2.00 (+\$8 per acre); barley, \$2.15; oats, \$1.06; potatoes, \$.82 plus \$50 per acre; sugar beets, \$18.62 per ton. Most of these prices are a little higher than the 1946 prices. Comparable livestock prices for 1946-47 are: fat cattle, \$14.50 per cwt, live weight; fat lambs, \$.36 per pound dressed; bacon pigs, 28.7 cents per pound dressed; pork pigs, 25.6 cents; eggs, 71 cents per dozen.

The procedures followed, it will be apparent, resemble closely some procedures that have been suggested many times in the United States. It was just after the First World War that the editor of this *Journal* devoted a master's thesis to showing the possible use of index numbers of changing costs as a way of revealing changing cost-price relationships. The writer made a vigorous proposal to Mr. H. R. Tolley in 1937 that indices of changing receipts, expenses and net returns be developed for the major type-of-farming areas in the United States, as a means of keeping under review the changing economic circumstances in the various segments of the agricultural economy subject to AAA controls. Dr. Wyllie Goodsell of the Bureau of Agricultural Economics is now cooperating with several states in developing such series for type-of-farming areas in these states. Such series, plus physical volume series for both outputs and inputs, have been computed for 32 systems of farming in New England from 1920 to 1938, and are now being extended to 1946.<sup>1</sup> The physical volume series are highly important if such series are to be used as guides to the administration of agricultural programs.

#### *Agricultural Controls*

A major contributing factor to the success of the British price-fixing procedures is of course the thoroughness of the controls over distribution exercised. The farm products are all bought by the Ministry of Food at the prices named in the bargaining, and then mostly sold to the trade at a lower price, the difference being made up by subsidies. The middlemen all receive a fixed fee per unit of product passing from producer to consumer, even though their function may have been modified considerably. This means that if the prices are raised, the increase comes out of the public treasury, since consumer prices have been changed little since they were first set. The subsidies paid in 1945 will amount to \$1,250,000,000, which is a lot for a relatively small country like the United Kingdom. Of course more than half of this sum covers losses on foods imported.

It will be apparent at once that price-fixing is much easier to administer with controls of this completeness. The middlemen seem to be well satisfied with the fees which they are receiving and to be cooperating with the price control officers to an extent not common elsewhere.

<sup>1</sup> See Chapter XI of *Parity, Parity, Parity*, J. D. Black, 1943.

Which leads to the question as to how long these controls and price-fixing are to be continued. The government has already guaranteed *minimum* prices for fat cattle, sheep, milk and eggs for 4 years at levels approximating 1944-45 prices, or around 90 to 95 percent of those set for 1946-47. Lord de la War recently moved in the House of Peers that production goals also be continued for four more years. The Ministry of Food deemed this unwise, but the peers supported the resolution by a vote of 43 to 12. To understand this vote, we need to realize that the price guarantees are for definite volumes of production referred to as production goals. These are amounts which the Ministry of Food and Agriculture consider needed from domestic sources and possible to be produced. Few people in the United Kingdom expect food to be sufficient sooner than 1950, and they are looking forward to three or four more years of food scarcity. They therefore want to give their farmers every assurance that they will have an outlet at good prices for all the food they can produce. If it should happen that overseas supplies become abundant in the meantime, the losses will be a small price to pay for the insurance afforded. Although the Ministry of Food did not favor the four-year guarantee, it probably expects to continue setting prices for several years at close to present levels at its annual February reviews.

The production goals set in England and Wales are not just something for the farmers to shoot at. They are prorated and assigned to individual farmers, each farmer being ordered to plant a specified acreage of wheat, potatoes, sugar beets, or other arable crops. The acreage of wheat, potatoes and sugar beets were increased greatly under such orders. The County War Executive Committees, which do the apportioning, have authority to take over the land and farm it in case a farmer refuses to obey his orders. It is true that up to August 1945, only 2714 farmers in all of England and Wales had been evicted for non-performance. Nevertheless, the enforcement authority has always been at hand. And it still is.

Thinking a year ago that world wheat production would be somewhere near adequate now that the war was over, the British government decided not to set any wheat quotas. The wheat acreage fell off around a fifth. They now expect the world wheat supply to be short again next spring, and for some time to come. Dr. A. W. Menzies-Kitchin in his recent little book, *The Future of British*

*Farming*, says the period of "scarcity and unsettlement following this war may last anything from five to ten years."<sup>2</sup> A British farmer-business man offered to pay the writer £500, with no compensating payment if he proved to be wrong, if any important farm product surpluses appeared in the world by 1950.

Having lived through seven years of food scarcity that was real in a way not ever felt by us over here, the British are now conditioned to thinking that food will be scarce for a long time. Never having felt any real scarcity, the people of the United States are conditioned the other way. Time will probably prove that both are wrong.

In keeping with this conditioning, very many in the United Kingdom are expecting that present controls will be retained for five or ten years; and some of them indefinitely. Mr. John Maxton, of the Institute of Agrarian Affairs, in his recent pamphlet, "The Control of Husbandry," points out that each of the recent party reports on post-war agricultural policy favors the continuance of the County Agricultural War Executive Committees, though this probably does not mean a continuance of all their war-time powers.<sup>3</sup>

A special further factor in the situation is the opinion of very many, perhaps a good majority, of the British citizenry, that the United Kingdom cannot spare its limited exchange balances for food, and must therefore produce its own. The percentage of home-produced food has risen from around a third before the war to nearly a half. The National Farmers' Union wants it kept at this level, and this position has strong support outside of agriculture. The British, along with some of the rest of us, no doubt scoffed at the "Battle of the Wheat" which Mussolini's Italy urged in the 1920's to save his foreign purchasing power; but the British, now in much the same position, feel a strong urge toward similar programs. Needless to say, many among them point out that a continuance of Britain's historic program of low living costs, low wages, and low manufacturing costs is needed to enable her to sell her factory products abroad and build up her sterling balances.

If, however, the decision is in favor of subsidizing food production at a high level, it will probably not be done in the main by imposing protective tariffs, but instead by continuing the present policy of buying high and selling to consumers for less, paying the

<sup>2</sup> Pp. 58. The Pilot Press, London, 1945.

<sup>3</sup> Oxford University Press, 1946.



difference out of the public treasury, and hence at no sizable burden on the working classes. *This will require a continuance of all of the present control of distribution.* The logic and the facts of the situation are therefore pushing a large fraction of the British population toward a continuance of the war time controls—not merely while food scarcity persists, but until the foreign exchange situation is much improved.

Mr. John Maxton, however, doubts greatly whether the farmers of England and Wales intend to keep on taking orders from the County War Executive Committees as to what they will produce and how, once food becomes abundant and world prices for farm products subside. He thinks that they will tolerate them while the population of England is in danger because of the lack of food, but not a day longer. Strong statements are also being made by middle-class groups in opposition to the heavy subsidies to consumers, the argument being advanced that wages are now at high levels and that the working classes are able to pay for their food without public doles.

#### *Production Programs*

The first major issue as to production programming is the one already introduced, whether the United Kingdom will continue its present emphasis on arable farming once food can be obtained in abundance in the world market. A visitor is at once struck with the great increase which has occurred in the eastern and central parts of England since before the war. Fields of wheat, or barley, still in the shock mostly in late August, and some still in the stalk because of the wetness of the harvest season,<sup>4</sup> meet the eye as far as one can see. That without controls or very heavy subsidies the wheat acreage will decline, no one seems to doubt. Nevertheless, the Union is asking for a continuance of arable farming at its present level or near it.

The official and much more generally accepted policy is for a rapid expansion of milk production, not only at the expense of arable farming, but also even of beef production. Half or more of the fresh milk now sold is set aside for children, the ration for children under 5 years and for mothers being 5 pints per week. Adults have been allowed 2 pints per week, but this is likely to be cut to 1½ pints shortly because of a shortage of concentrates for dairy

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<sup>4</sup> Some rain fell in 22 of the 31 days in August.

feeding. The first group is of course consuming much more milk than before the war, with resulting improvements in health that have been amply demonstrated. Children over 5 years also need a full ration of milk. There seems to be a determination on the part of the British to give themselves all the milk that they can be induced to drink. (Considerable inducement will be needed before anything like the levels prevalent in the northern part of the United States are obtained.) An increasing consumption of ice cream is urged by some as a way of getting children to ingest more milk. An American might suggest that this would be much more effective if the ice cream contained less corn starch.

The British insist that they can easily produce for themselves all the fresh milk they need. The Dutch have offered to supply them with milk in semi-condensed form, and the Danes are talking of shipping them fresh milk in tank ships. But neither of these proposals is acceptable to the British. They point out that milk can be shipped much longer distances in the United Kingdom itself—150 miles is about the present limit—and that dairy herds can be enlarged on present farms, that production per cow can be increased, and that many more herds can be shifted over to dairy breeds. The number of Holstein-Frisian herds has increased greatly since the writer first visited the British Isles in 1929. Ayrshire herds are also gaining rapidly in numbers. Fresh milk is still paid for only on a gallon basis, and some of the Holstein herds test below 3 per cent. The prejudice is still strong among the farmers in favor of the Shorthorn and other red breeds—British farmers indulge themselves in statements such as that the Frisian cattle are not suited to the English climate, or are not as hardy as the red cattle, or that they play out after a few years of heavy feeding.

The Ministry's program includes the following: (1) Vigorous development of artificial insemination. (2) Keeping breeds of cattle clearly separate. This to them means especially the keeping of beef types of Shorthorn cattle from being mixed with milking types. (3) Through artificial insemination, making it possible for farmers to breed to beef-type bulls the cows whose heifers they do not wish to raise as milkers. This will help a little to supply the country with beef. (4) A more vigorous program of disease control. Tuberculosis control is still largely on a voluntary basis. Herds free of tuberculosis when tested each year are allowed to call themselves "tested" herds, but as low as 5 or 6 percent of the herds are

"tested" in some counties. One of the reasons for the spread of the Ayrshire breed is that the herds in the Ayrshire districts of northern England and Scotland are much freer of tuberculosis. Bang's disease is also still widely prevalent, although vaccines are in process of coming into general use.

The feeding-stuffs problem is concerning the British greatly, as one would expect in view of their wartime experiences. They have concluded, with some reason, that export supplies of grains, oil cake and other concentrates will be shorter in the future than in the past, because other countries are also bent on expanding their output of dairy and poultry products and meats. There could, of course, be a compensating expansion of feed-grain output in the exporting countries; but optimism on such subjects does not run in the British mind at present. The conclusion derived from this situation is that the United Kingdom must grow much more of its own dairy feedstuffs, and that these should take the form of forage more largely than in the past, with more emphasis on legumes. No doubt this is a sound conclusion in any case. Up to the point that any European country can produce its own dairy forage at no prohibitive sacrifices of foods for direct human consumption, it should do so in preference to importing concentrates. Probably the Danes have been going about as far in this direction as it is reasonable to go; and possibly the Dutch, but surely not the British. In the first place, forage for dairy herds can be increased much by pasture improvements. The British have known much about how to do this for a long time, but the known practices have not been widely adopted.<sup>5</sup> Secondly, hay crops can be made to contribute to better balanced rations by including more legumes in them.

#### *Agricultural Extension*

Closely related to the foregoing, the United Kingdom Ministry of Agriculture is in the process of initiating a nation-wide agricultural extension service under the name of the National Advisory Service, with Mr. James A. Scott-Watson in charge. When this Service is fully manned, it is expected to employ around 1500 persons. England and Wales together are being organized into eight provinces, each of which will have a group of "extension specialists," to use the American term, in addition to those employed on

<sup>5</sup> See Menzies-Kitchin, op. cit., p. 60, for discussion of this.

the central staff. The set-up at the county level under the County Organizers ("county agents" in the United States) is not clear as yet. It depends in considerable measure upon the future of the County War Executive Committees. For the purpose of carrying on the wartime activities, the counties have been broken down into something like a dozen districts with a man in charge of each district, and several county committees have assisted in the execution of the orders and the allocating activities. How much of this structure will remain when the county committees no longer have the job of rationing scant supplies of feed, fertilizer and other supplies, and probably not the working out and enforcing of production quotas, and similarly for some parallel functions with respect to labor, machinery and credit, seems in Maxton's judgment not to have been thought out clearly by those who wish to perpetuate the War Executive Committees. He also considers that their procedure of grading all farming as A, B and C as a means of eliminating C-grade or bad farming will not be workable or useful in peacetime. He considers that the grading was very crudely done, perhaps 10,000 farmer committeemen taking part in it with a wide range in conception as to what constitutes good and bad farming. The functions left are "technical advisory" mainly, and to these the county organizer and his staff, with the guidance of the County Agricultural Committees, all in existence before the war, seem to be well adapted; all that is needed is to strengthen them by financing and staffing them more amply, and giving them the kind of technical and other assistance being made available through the new National Advisory Service.

The middle-ground position is that something different in content as well as in volume is needed, and that to preserve in appreciable measure the sanctions of the War Executive Committees will be excellent strategy. It needs to be pointed out that nowhere in Maxton's discussion is there recognition of the use of such devices as the Agricultural Conservation Payments, of what is now our Production and Marketing Administration, as a means of promoting better land use, or of the procedures employed by our Soil Conservation Service and Farm Security Administration (including the Bankhead-Jones Act part of it). These go far beyond what an ordinary extension or "advisory" service is likely to undertake.

One major basic issue involved in this is whether education and "executive" functions should be combined in one agency, especially

if the latter includes a measure of policing. Many in the United Kingdom as well as in the United States doubt if they should be thus combined. If they are in separate agencies, however, a difficult problem arises of integrating them, as we in the United States have become well aware. It will be apparent that the situation which the British are facing closely parallels that in the United States. Our County War Boards have been abolished in name, but such of their functions as remain are being performed by state and county "field offices" of the Production and Marketing Administration, which are in large measure only the prewar offices of the Agricultural Adjustment Administration. An Agricultural Council has been set up in each state and county to promote a proper working together of the several federal programs, and the state and federal programs, but these councils are not very active at present. The Agricultural Extension Service in each state and county is entirely separate from these first two, except as it is represented on the Council; or as the county agent may function in connection with the first two, often as a secretary or even in effect as an executive; or as the three agencies may have interlocking directorates, the same leading farmers serving on all three boards or committees of the same.

Whatever the organizational setup that finally eventuates in the United Kingdom, the agricultural extension work will be greatly expanded under able national leadership. The principal retarding influence will be a lack at the start of sufficient trained personnel for the specialist positions, and a lack of research results and information needed by the extension workers in helping farmers to plan their farms and operations.

## NOTES

### THE RAPE MARKETS ON THE CHENG TU PLAIN

THIS article deals not only with the rape, t'sai tzu, market itself but also with those of vegetable oil, t'sai yu (the liquid product after extraction of the rape), and t'sai ku or mo ku (the solid by-product after the extraction of the rape). T'sai yu and t'sai ku are the two main products from this oil-yielding plant, t'sai tzu, which is one of the main agricultural products on the Chengtu Plain.

Rape markets follow the five gates of Chengtu stretching to the nearby districts forming five different lines of marketing, and five different units of measurement. All the rape markets situated at the gates are mixed with rice markets. The South Gate and its two tributaries, Chu Chiao, and Shuang Liu, belong to the Nan Men group using the Nan Men Tan (by volume) as the unit of measurement. After careful study we found that one Nan Men Tan is exactly twice as much as one standard tan, shih tan (1 shih tan of oil = 125 standard chin, by weight). The New West Gate having Ch'ing Yang Kung, as the main market center connected with Su P'o Chiao, and Wen Chaing forms another special group whose unit of measurement is called Liu Sheng Tan or Tou, which is equivalent to 1.13 Nan Men Tan. The Old West Gate marketing is done in the famous Hua Pie Fang, while Tu Chiao, Hsi Pu and Pi Hsien, are the other 3 centers using the same unit of measurement called by the name of Tu Chiao Tou or Tan, equivalent to 1.08 Nan Men Tan. At the North Gate there is no rape market; but there are markets in Hsin Tu (40 li outside the North Gate), and San Ho Chang (20 li outside the same gate) and here the unit of measurement is equivalent to 1.21 Nan Men Tan. The two markets at the East Gate are called Niu Shih Kao, and T'ien Yi Tien, and the tan there is equivalent to 1.31 Nan Men Tan.

The vast differences in the unit of measurement are probably caused by the absence of adequate means of transportation as well as by the great differences in customs and traditions kept by people who migrated there from various parts of China after the death of the notorious bandit, Chang Hsien Chung. Nevertheless the practice of self-support within a community in the early days encouraged localism, and subsequently diversity and variety too.



If the unit of measurement were the same, the situation would be much simpler; the number of merchants engaged in it would be greatly reduced and underhand practices could have been limited to a certain extent.

Except at the South Gate, where there is a daily market, all the centers take turns in fung chang, marketing. For example Su P'o Chiao has its market days on the 3s, 6s, and 9s of the lunar month; the Old West Gate on the 1s, 4s and 7s while Niu Shih Kao has them on the 4s, 7s and 10s, and Tung Yi Tien, on the 2s, 5s and 8s. Again, all retailers, brokers, and hoarders take advantage of these ancient practices and make full use of their superior knowledge in the matter of communications and travelling around; they then attend these markets on different days comparing prices and finally getting control of the markets.

On market days, activity takes place only during a short period of the day, say from 11:00 a.m. to 1:00 p.m. after the traders finish their first meal of the day. The ancient marketing time table Jih Chung Wei Shih, literally meaning 'selling and buying is done when the sun stands at the middle of the sky,' is still used.

The spot chosen for the market is often a clear opening, a temple or the main street in which case the market is changed from one end to the other end as in the case of Su Po Chiao. As a general rule practically no one brings along his whole stock of rape or even samples to the market; for most of the sellers and buyers know each other so well that they could state the number of bricks on each other's walls, much more the kind of seeds they grow. Thus a newcomer is definitely an outcast. If one happens to walk through the market one sees only small quantities being carried by small tenants who are desperately in need of cash. After the group has gathered together at a certain hour on the market day at a market center, business will immediately take shape. Prices are settled between parties subtly inside the sleeves or under the coat, by indicating the 10 figures with ten different finger signs, a method known to all business men and farmers. The price agreed upon remains a secret between the buyer and the seller so that any third party would never have a chance of interfering with the deal or interrupting the bargaining.

Under good economic principles prices should be determined by the law of supply and demand; but aside from that, prices here are decided by speculation, the amount of floating capital at the mo-

ment, and the number of hoarders present, and finally by the ever changing war and political situations. However, climatical conditions which have so great an effect on the quality of seeds grown play an important role too. Once a price is agreed upon it is fixed forever; no human effort could succeed in altering it. Credit is highly kept and followed by both parties though there is no written statement to testify to the transaction. The ancient practice of breaking a piece of tile into two to be divided between the buyer and the seller is still in existence in some of the markets. However the most recent practice of having a simple unsigned contract written on any piece of paper with only the amount and the price on it, has gradually taken the place of the former. After the contract is split into two, as in the case of breaking a piece of tile, a proportional amount of earnest is to be paid or not to be paid by the buyer depending on the agreement at the time of bargaining. If the buyer is ready to pay the whole amount at once there is sure to be a little deduction in the price.

Once a buyer is in possession of that half piece of tile, or slip, he is in a position to call upon the seller for his goods any time he wants to. Or, he might, if he chooses to without having seen the rape he bought, sell his slip to another man at a different price, and at a different market. The presence of a broker at a given transaction is possible though not probable. He is officially called *tou hu*, meaning the one holding the 'standard *tou*' in that particular market. Actually he seldom measures for either parties. His expert knowledge of the community and the people enables him to go around introducing buyers to sellers and vice versa; in both cases 100 dollars per *tou* is the official rate of payment, for both the buyer and the seller. For a newcomer who, obviously, will be ignorant of these unofficial tiles and slips, the broker, though usually a pettifogger of the community is someone to depend on. Most brokers are not satisfied with merely being a go-between and they might buy in a certain amount of rape at a comparatively low price and immediately sell the slip to another man. In such cases the presence of capital is unnecessary.

Without a thorough knowledge of the locality, the possession of a slip is useless to the buyer. He may not even be able to find the village, much less discover the whereabouts of the producers' farms which are isolated and scattered thinly around the district. As a result, traders must spend their lives there, knowing every-

body's face as well as their conduct in dealings in the past, being acquainted with the ever-changing small country paths, and the ups and downs of each individual seller. Therefore, it is little wonder to find that practically all successful business men have spent their whole lives in a district and that at their death their positions are filled by their sons. An outsider would have to go through the head of the secret society, To Pa Tze, of the said Ma Tou, (region) in order to obtain the goods he had paid for.

At the time of delivering, the kind of tou used by that region is certainly the unit of measurement. However when measuring there is a difference between single and double scrape, the method applied to smooth the surface of the tou after pouring rape into it. Handled by an expert a double scrape may enable the seller to give less to a tou. Practice of single or double scrape at the time of delivery has to be agreed upon at the time of bargaining.

Roughly speaking there are four kinds of buyers and sellers of this precious seed. We have already mentioned the hoarders, who are in possession of a large capital; they speculate, and control certain markets, selling out when the price has come to a temporary peak and buying in at the time when the producers are badly in need of cash. Next, we come to the regular business man, fan tze, whose major interest is in the transportation and the profit to be gained from such an undertaking. Better able to travel about he compares the prices of different markets, buying in at one and selling out at another. Next we come to the retailers. These are small business men who have but little money and can afford to buy in small amounts only. After they are in possession of the rape, they either wait for a chance to sell it to a mill or somehow get it turned into oil and sell it to the nearby farmers, who buy a quarter of a pound at a time. Finally we come to the farmers, the real producers, yet they are the only sellers whose knowledge of the market is nil and they go in constant fear of both their land owners and the high rate of interest. Immediately after harvest they are forced to sell what they have at any price and as quickly as possible.

Vegetable oil is obtained by crushing the seeds. As mentioned above it is done exclusively by water mills, nieh fang, located along the main branches of the rivers which are fed by the water from Kunhsien. People who are themselves engaged in this business are called nien tze and are classified as technicians. A knowledge of sectioning the water and letting it flow through the dykes on

the mills must be acquired. And a knowledge of getting the most out of the rape and preserving the oil is also something to be learned. The practice of double crushing is most common; after the seeds are steamed, a second crushing is always necessary. Vegetable oil as we understand it is used mainly for cooking and lighting. But during the war it sometimes took the place of diesel oil after cracking or even of lubricating oil for many repair shops. Depending on the quality of seed a double tan of rape ordinarily produces 85 old chin of oil and 135 old chin of t'sai ku. (One old chin=1.146 standard chin and 1 double tan of rape=250 standard chin.)

Ordinarily rape is sold to the nien tze by farmers or the business man, and the nien tze, after obtaining oil and t'sai ku from what he has bought, sells them in turn. Although it is not frequently practiced, farmers can still ask the nien tze to do the crushing for them; under such case 10 chin of oil for one double tan of rape is about the rate, and the t'sai ku goes back to the original owner. The owner of a nien fang is probably not the nien tze himself. He gets somebody else to be the nien tze. The manifold details concerning such a contract could take up a whole book; in this article we have chosen not to write about that. It is one of the most interesting relations which exists between a property owner and a tenant.

The names of all the mills follow the family names of the owners, as Jen Chia Nien, Ma Chia Nien, Yu Chia Nien, etc. The unit of measurement of a certain nien is identified by the name it possesses. Thus, as soon as the name of a certain nien is mentioned one immediately knows the size of its tung, the big tub for holding oil. The size of a mill depends on the number of separate dykes and rollers it possesses. However, it is most uncommon to have a mill equipped with 20 or more rollers; in most mills one finds from three to ten machines each. Each nien fang has a socially recognized tub for holding oil. The initiation ceremony of a given tub is always a big event in the life of the community. The owner of the nien fang or the nien tze, after various ceremonies intended to win the favor of God and after presenting numerous gifts to the God of the River, sets the size and shape of a given wooden tub to be recognized by the community and known to the people from far and near. All rural leaders and heads of secret societies are invited to witness the ceremony which is almost always accompanied by a big feast at the

end. The sizes of the tubs vary from 270 old chin to 299 old chin (for example the Yu Chia Nien Tub being the largest holds 299 old chin of oil). As we all know anything made of wood is subject to climatical changes. Moreover the way of setting a tub may have a lot to do to the amount of oil it holds. Apart from the tub, both chih and ch'e are used as units too. Ordinarily it is 3 tubs to a ch'e and a chih is about 180 standard chin.

Oil markets are found exclusively at T'an T'ien Chu on even days and the Temple of the God of Fire, on odd days at the North Gate. Only a very small part of this business is found in Niu Shih Kao and Tung Yi Tien, at the East Gate. After processes similar to those in the transaction of rape, the deal is made, only that the units used here are either tub, chih or ch'e depending on the situation and with the understanding that the buyer has to go to fetch his oil. The fetching of oil opens another interesting part of the story. Of course each nien fang is located at a different village and each varies widely from another one in distance from town. During wartime, expenses in transportation count as an important factor too. Two technical terms have sprung up to indicate the distance away: lai hui kung, meaning that the oil could be fetched in one day's journey, and yuan kung, meaning that it would take more than a day to get the oil to town.

As a result business men, in addition to taking into consideration the sizes of the different tubs, have to take special note of the distance of a certain nien fang from town too. A tub of oil, then may mean almost anything. Mr. A's tub of oil may be a few thousand dollars cheaper than Mr. B's; but if he takes all considerations into account, he might choose B's tub instead of A's.

Those who especially interest themselves in the business of transporting oil form a special group, called by the name of yu kung, meaning oil worker. Yu kung is again divided into two classes: yuan kung, soft worker and eng jung, hard worker. When you hire a soft worker to get oil for you, though the transportation fee is almost nil, an unwritten understanding 30 chin per ch'e of oil will be lost is mutually and silently agreed (equivalent to open stealing). The wage for a hard worker is invariably higher, yet even here oil stealing cannot be entirely avoided.

Once oil is transported from the different nien fang to town, another market emerges—this is An Lo Ssu, the famous black market situated almost at the center of Chengtu proper. This

market is famous for its dealings in solid gold, American bank notes, tobacco and cigarettes and finally t'sai yu. As soon as oil reaches the hands of people at An Lo Ssu, the measurement is no longer done by volume. From there on it is by weight; old tan is the unit of measurement. (One old tan=100 old chin=114.64 standard chin.) And from there on the buyer does not have the bother of getting the oil himself; the seller has to send the oil to him. Unlike the practice in the other markets we find signatures and seals on contracts here. Dealers are supposed to know the language and the characters.

Actually it is only oil shop keepers and retailers who trouble to buy oil in An Lo Ssu; and through the hands of these retailers, all the real consumers of oil in town are able to obtain oil. We can now figure out the number of go-betweens from rape raisers to the true consumers. After oil reaches the hands of the shopkeepers the unit of measurement changes again—only the standard chin is used. So that if a retailer gets 100 old chin of oil for \$40,000 from An Lo Ssu and sells it at the same price to the consumers, he nets 14.64 standard chin of oil as his profit.

T'sai ku comes last in our analysis of the rape markets. As we understand it, it is the by-product after the extraction of rape, and after the oil is obtained. In other countries, it is a waste product but in Szechuan and other parts of China where chemical fertilizer remains only a high sounding term inside the so-called experimental stations, it still remains the main fertilizer.

T'sai ku is made in the shape of cakes, each weighing about 20 old chin. Every five cakes make one t'ai. T'sai ku can be obtained through three main channels. Tien ku, meaning t'sai ku stores, are found near the East Gate where you can obtain as much as you please through those merchants but there you expect to pay a higher price as compared with the other two places. Nien ku, means t'sai ku obtained directly through the different nien fang, scattered around at different places and from which one has to 'go and get it,' and on which one expects to pay a lower price. The third kind is yu ku, meaning that the date of delivery is made on a later day in the coming month or even some months later, in which case one expects to pay a much lower price, after a small deposit is paid to the seller.

Governing all the three kinds of transactions a general practice called by the name of An San Kao Erh, prevails in all its markets.



At the time of weighing three chin are subtracted from every t'ai and on top of that 200 chin are taken away from every 20 t'ai. No satisfactory reason or reasons could be offered for such a practice unless one takes into account the unavoidable loss on the way when delivering and loss of weight due to changes in the climate.

The practice of Mo Ling ignoring the small change (the remainder) is observed in all t'sai ku markets; any figure below 100 dollars is cancelled.

Those who engage themselves in the business of t'sai ku are some of the lowest in society. They go around collecting t'sai ku at different nien fang at low prices and always delay the payment a long time. People in the nien fang, fully occupied with the work on hand, cannot spare the time to travel around, disposing of this important by-product and therefore are often forced to sell it to the ku fan tze.

The price of t'sai ku varies greatly during the year, depending on the demand for it on the farms. Certain cereals and vegetables will grow only if t'sai ku is used as the fertilizer. During these months the price of t'sai ku goes up.

The Farmers' Bank of China has recently been working on a large scale project for collecting t'sai ku and for turning it into a good fertilizer. If this plan is carried out, the price of t'sai ku would rise even more steeply.

By now the reader must have a rough impression of how primitive and uncoordinated the methods adopted by the dealers of rape, oil and t'sai ku on the Chengtu Plain are. So far as we know nowhere else in China does one find such a complicated machinery. It seems that no new system is desirable here, for no system could be introduced without breaking up the normal life of the people who depend on it and live by it. For a country where communication is most difficult, where the power of the government is very much limited, where the use of machines is in its infancy and where conditions are unsuitable for organization, we may have to be satisfied with the present situation for a while. The sudden adoption of a new system would mean that hundreds of people would be thrown out of a job, the very thing which they have been and still are dependent on for their livelihood.

It is interesting to note that even though for 17 years our government has been trying to force the people to adopt the new system of measurement, we still find today the conditions stated above.

The fact that the shih chin and shih tou can be used inside the four walls of the big cities is only because they are relatively less in weight and smaller in volume than those used by people outside the cities. Merchants then are able to make use of these small units of measurement to gain profit by fooling the producers.

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### INCOME PAYMENTS AS A SUBSTITUTE FOR SUPPORT PRICES\*

**A**RE there any real advantages to the income payments proposal over the outright supporting of individual prices at some percent of parity when the objective of making income payments is to fill in the difference between equilibrium prices and support prices? The income payments proposal would seem to "solve" the surplus problem. For the prices of agricultural commodities would simply fall to that level where the output of each commodity had cleared the market, although the income of farmers would be maintained or enhanced by special payments made from the United States Treasury in accordance with the output of each farm operator.

For a time consumers might live under the illusion that they were purchasing food and fiber products at a freely competitive price, but that illusion would fade when they discovered that they were paying taxes in some amount, varying with the consumer unit, to finance income payments to farmers made in lieu of their realizing a supported price. Assuming that the public wishes to continue subsidizing agriculture, the question then arises as to which is cheaper—the necessary income payments or the operations required to support a given price? No answer can be given to that question here. But it should be clearly recognized that a program of income payments would have to be paid for by the people of the United States. And if, for example, the income payments program were financed completely from funds raised by a sales tax, consumer incomes would be reduced so that they (consumers) would have less to spend on all goods and services. Hence, the incidence of the income payments program would fall in the form of slightly reduced

\* The views expressed here do not necessarily represent the views of the Bureau of Agricultural Economics or the Department of Agriculture; they are the responsibility of the author alone.

demand for all goods and services—not alone on agricultural commodities. If, on the other hand, the income payments were financed entirely from funds raised by progressive income taxes, low income consumers would benefit directly, since they would be purchasing food and fiber items at the lower equilibrium price and paying little if anything in taxes. Thus, they would be in the position to expand consumption in all lines, including food and fiber, out of their enhanced incomes.

It would appear that the claims of the protagonists of income payments are essentially correct in that a larger volume of farm products would move into consumption through the regular channels of trade with an income payments program than with price support program. If the income payments are financed largely from sales taxes, then the relative expansion will take place at the expense of other lines of consumption. If the revenue is raised from income taxation, then the relative expansion tends to come out of intended savings. It should be recognized, however, that to the extent farm prices are supported by government purchases or non-recourse loans and the surplus commodities acquired by those operations are distributed to low income people, food consumption is expanded outside the regular channels of trade. The question of alternatives to this point thus simply turns on an empirical investigation of costs to the public.

Closely related to the domestic consumption effects of an income payment program are the export implications. Prices of individual agricultural commodities under the income payments proposal would be permitted to seek the world equilibrium price, while income payments were made to producers of those commodities at the expense of domestic consumers. Farm income is held up at home while American farm products move in the world market at the world price. Thus, underneath this sophisticated dress suit a program of export dumping emerges. Foreign competitors might be fooled by these mechanics temporarily, but they would soon retaliate with export subsidies of their own, import quotas, and similar paraphernalia.

It is possible that a two-price export program might be worked out in cooperation with other export nations and with the consent of import nations, whereby certain of the import nations became "dumpees"—that is, accepted food at a reduced price to mitigate suffering and malnutrition. But such programs would need to be

worked out carefully and in full cooperation with all countries affected.

The foreign trade difficulties which might well develop under an income payments program point up what would seem to be the basic fallacy in the reasoning of protagonists of the income payments proposal. *Farmer-producers would not adjust their production to the anticipated world equilibrium price, but rather to that price plus the added income payment per unit sold.* If they failed to expand production, and hence increase their income, insofar as *the world price plus the income payment* exceeded marginal unit costs, they would be poor businessmen. Thus, ultimately we are led back to production control. If we make it profitable for producers to expand production almost indefinitely, we must then control the amount which may be produced. The output of farm commodities under an income payments program would need to be limited to domestic requirements plus our "fair share" of the foreign market.

We have seen that income payments made to farmers in lieu of realizing support prices would send a heavy flow of agricultural commodities into the export market. But it would not be an endless flow, and the quantities involved would necessarily vary with the commodities involved. The production of, hence output of, each farm commodity would expand to that point where the last unit produced, marginal unit, would cost more to produce than the return per unit—the world equilibrium price plus the income payment per unit. The picture is one in which production has expanded *in fact* to the higher support price, while the expanded output sells at the lower world equilibrium price. If no foreign retaliation took place this would be an ideal situation for the farmers of the United States—although not so ideal for domestic consumers since they would be bearing the costs of the compensating income payments.

But it would be foolish to assume no foreign retaliation. Competing export nations might adopt similar schemes in which case the world market would be flooded with the commodities involved, prices would be driven toward zero, and the size of income payments to domestic producers to realize predetermined support prices would become prohibitive. Most food and fiber importing nations do, however, produce the bulk of their food and fiber or have direct access to those commodities from their colonies. Hence, it appears most likely that the importing nations to protect their own producers would strike back by raising their import quotas

on United States food and fiber products. In this situation producers would once again find themselves confronted with a surplus condition since output in certain commodity lines would be in excess of domestic requirements plus the foreign markets left open to them (see fig. 1).

Confronted with mounting surplus stocks, waste, and spoilage, responsible agencies would be forced to initiate production controls to restrict output. This restriction in output might take one of two fundamentally dissimilar forms. First, the output of each producer

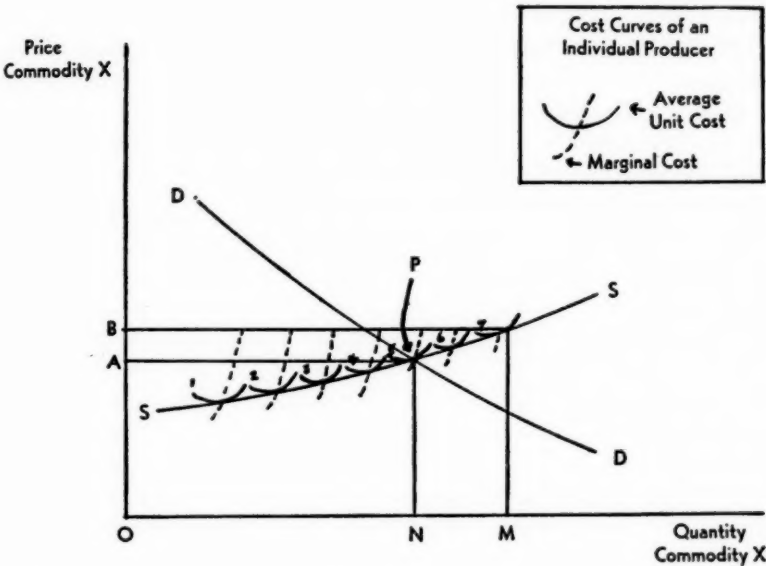


FIG. 1. Demand DD (domestic demand plus foreign markets open to United States Commodity X) intersects with Supply SS (United States output of Commodity X) at point P where ON amount of Commodity X would clear the market. But with OA price plus income payments AB (or the support price) OM amount of Commodity X is forthcoming. Hence, a surplus condition of NM amount is created. In terms of individual producers, number 5 is the marginal unit and numbers 6 and 7 are in production by reason only of the income payment represented as price AB.

could be reduced by some type of quota, probably a percentage of the producer's output in some base period, so that the total supply forthcoming would clear the market (ON amount in fig. 1). Or second, the less efficient producers could shift out of production in those commodity lines in surplus, and thereby reduce the excess

and inefficient productive capacity in those lines (producers 6 and 7 would cease producing commodity X in fig. 1).

The first type of production control is in reality no solution to the fundamental problem of excess productive capacity—that is, the capacity to produce more products than can be moved into consumption at the given market price. Each producer, the efficient and the inefficient, is given a production quota somewhat below his most desirable output in order that the total supply forthcoming may clear the market. But each producer could increase his income by producing more than his quota, since at the quota amount his marginal unit costs are less than the return per unit (OB amount in fig. 1). Hence, producers will not contract their farm plants, but maintain them in the hope of expanding output next year. Thus, a permanent condition of excess plant capacity can be expected under this type of production control. Further, a permanent drain on the United States Treasury can be expected. All of the people of the United States, including the farmers receiving income payments, would then be taxed year after year in some proportion to meet the cost of holding some part of the national agricultural plant idle.

The second type of production control, on the other hand, could lead to a permanent solution of the problem of too great productive capacity in certain commodity lines. Restricting production, hence output, by eliminating the most inefficient operators, clears the way to reduce and finally curtail income payments to producers. If those producers who could not afford to produce at the equilibrium price (producers 6 and 7 in fig. 1) were made payments contingent on their transferring to a new type of enterprise (and incidentally provided with the funds to effect such a transfer), only those producers would remain who could afford to remain in production at the equilibrium price—those whose average unit costs were below the market price (producers 1 through 5 in fig. 1). The total output demanded could be produced at the equilibrium price without loss to any of the producers involved, and hence there would be no justification for continued income payments. Further, it might follow that with the abandonment of export dumping foreign import nations would relax their import quotas, foreign demand would increase (curve DD in fig. 1 would move upward and to the right), and equilibrium prices would rise. This in turn would increase the return to established operators, and make possible



the entrance into the commodity line or lines of less efficient producers.

Thus, there emerges a new role for income payments to agricultural producers. In the above situation income payments would not be made to producers to make up the difference in return between the equilibrium price and the support price, but rather to effect adjustment in the agricultural plant. *The objective of such an income payments program would be to assist producers to shift (1) into commodity lines for which they are more efficient relative to equilibrium prices or (2) into nonagricultural pursuits.*

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### ARE TENURE DIFFERENCES DUE TO TENURE?

**T**HIS paper reports the results of measuring differences on specified farm and family items between matched groups of owners and tenants. The purpose of this study is to determine if reliable differences exist between tenure groups when certain factors, suspected of being responsible for tenure variations, are controlled.

In most researches on farm tenure, it is common practice to attribute largely to tenure the differences found between owners and tenants in production, wealth, income, level of living, and other items. There are two explanations of this practice. First, because tenure has been a major subject of study in recent years, the tendency in research has been to impute to it greater significance than it actually possesses. Second, the simple statistical techniques ordinarily used in tenure studies give results which support the hypothesis of tenure differences but they do not reveal the correct source of these variations. In arriving at tenure comparisons, the usual procedure is to hold constant one factor at a time, such as age of operator or size of farm. The cumulative effects of all factors that account for differences between tenure groups are nearly always neglected or ignored. Consequently, it is easy to over-emphasize the role of tenure and to blame it for a disproportionately large share of the ills in agriculture.

This study assumes that different combinations of human, physical, and economic factors are functionally related to tenure. That is,

variations in the amount of land, labor, livestock, liquid resources, and managerial ability are largely responsible for differences in the performance or achievement of individual farmers. Tenure relates to the arrangements under which land is controlled and used, and as such, is one aspect of the land factor. If the researcher wants to learn the true influence of tenure in the farm and family situation, he has the task of isolating or controlling the factors which in part account for variations within and between tenure groups.

Several advanced statistical methods are available for analyzing complex data, including variance, multiple or partial correlation, and factor analysis. But these may not be adaptable to a study of tenure differences. An alternative method, and the one used in this study, is the experimental design. Though it does not disclose the source and amount of item variation attributable to the numerous factors involved, the method is simple and adaptable to a wide variety of research problems in which the object is to determine the significance of a single stimulus or factor operating in multi-factor situations.<sup>1</sup>

Data from three surveys in Oklahoma were used as a basis for this study. The first step in procedure was to obtain groups of owners and tenants from each sample which would be similar, or homogeneous, with respect to the factors selected for control. To do this, frequency distribution control was employed as a means of equating factors. Instead of matching owners and tenants exactly on each variable, which is referred to as precision control, pairing was accomplished by drawing cases which were alike within class intervals. This was to avoid too rapid shrinkage of cases. Thus a farm owner, 40 years old, with 160 acres of land, 1500 production man-work units, and eight grades of schooling might be paired with a tenant, 45 years old, with 155 acres of land, 1550 production units, and seven grades of schooling. For practical purposes, approximate pairing is nearly as satisfactory as identical matching, and it minimizes the wastage of cases.<sup>2</sup>

Because of the lack of necessary data, it was impossible in the present study to control all, or even the most important, factors which determine the performance of owners and tenants. For ex-

<sup>1</sup> For a rather exhaustive treatment of experimental techniques, see Ernest Greenwood, *Experimental Sociology*, New York: King's Crown Press, 1945.

<sup>2</sup> *Op. cit.*, Ch. VI.

ample, no measure of managerial ability is available, yet it is perhaps one of the most relevant factors accounting for variation in farm operations. The number of factors which can be used as controls without reducing the tenure groups to a vanishing point was a further limitation encountered in this study.

The factors controlled in each sample, with comparative data for owners and tenants, are shown in Table 1. Beginning in Sample I with a total of 337 owners and 480 tenants whose families were unbroken and whose parents, both operator's and wife's, were farmers, four successive pairings reduced the sample to 52 owners

TABLE 1. COMPARISON OF FARM OWNERS AND TENANTS ON CONTROL FACTORS

Control Factor	Sample I		Sample II		Sample III	
	Owners N=52	Tenants N=52	Owners N=42	Tenants N=42	Owners N=51	Tenants N=51
Age of operator, years	47.6	47.3	46.6	45.9	48.0	48.3
Number of acres in farm	174.8	183.0	216.7	203.5	107.3	106.5
Number of acres cultivated	—	—	—	—	40.7	46.1
No. of production man-work units	—	—	2405	2428	—	—
Number of cattle	—	—	—	—	8.0	6.1
Value of farm, dollars	4837	4865	7411	7497	—	—
No. of school grades completed*	7.3	7.0	8.7	8.4	—	—

\* Average combined schooling of operator and wife.

and 52 tenants. The original cases, 444 owners and 473 tenants, were obtained in 1937 by near random sampling in a survey of four counties located in different types of farming areas in Oklahoma.<sup>3</sup> The extremely large reduction in number of cases from the initial starting point to the final sample is due partly to the wide disparity in age composition and in values of farms operated, between owners and tenants. The paired tenure groups in Sample I exhibit a high degree of similarity with respect to the four variables arbitrarily selected for control, namely: (1) age of operator, (2) total number of acres in farm, (3) value of farm owned or leased, and (4) average number of school grades completed by operator and wife.

The 42 owners and the like number of tenants in Sample II were drawn from groups of 162 owners and 120 tenants, respectively, surveyed in selected areas of southwestern Oklahoma in 1943 by a

<sup>3</sup> See William H. Sewell, *The Construction and Standardization of a Scale for the Measurement of the Socio-economic Status of Oklahoma Farm Families*, Stillwater: Oklahoma Agri. Exper. Sta. Tech. Bull. No. 9, April, 1940, pp. 21-26.

grid method of sampling.<sup>4</sup> The factors controlled were the same as those in Sample I, with the added factor of production man-work units. The two tenure groups are as nearly homogeneous as it is possible to make them, with reference to the factors used.

Sample III consists of 51 cases each among owners and tenants, drawn from a total of 158 owners and 126 tenants, surveyed in 1944

TABLE 2. COMPARISONS OF CONTROLLED GROUPS OF FARM OWNERS AND TENANTS ON SELECTED FARM AND FAMILY ITEMS

Item	Sample I		Sample II		Sample III	
	Owners N=52	Tenants N=52	Owners N=42	Tenants N=42	Owners N=51	Tenants N=51
<i>Average:</i>						
1. Number of workstock	3.3	5.1	3.0	3.6	2.6	2.8
2. Number of milk cows	7.1	6.3	5.6	5.5	3.6	3.3
3. Number of beef cattle	13.0*	9.2*	18.2	15.4	4.2	2.8
4. Val. of farm machinery, dollars	212.7*	128.2*	1150	1165	—	—
5. Cash income, dollars†	1178	111	1765*	1122*	745*	603*
6. No. of persons per household	4.4*	5.3*	3.7	4.0	4.8	4.5
7. No. children born alive	3.5*	5.0*	3.7	3.4	4.7	4.1
8. Grades of schooling completed‡	7.3	7.0	8.7	8.4	7.1	6.5
9. Housing score	16.0*	13.0*	20.5*	18.2*	10.0*	7.4*
10. Socioeconomic status score	158.3*	145.4*	175.7	168.2	143.3*	134.0*
<i>Percentage of farm operators reporting:</i>						
11. Parents of oper. and/or wife as farm owners	90.4	82.7	94.1	80.0	78.4	66.7
12. Homestead, allotment, inheritance or gift received during earning life	45.1*	25.5*	33.3*	16.7*	—	—
13. Location of farm on "best" grade of soil	23.5	21.1	40.5	43.9	—	—
14. Possession of tractor	36.5*	17.3*	61.9	64.3	5.9	3.9
15. Wheat as the main cash crop	53.1	54.0	4.8	2.4	—	—
16. Cotton as main cash crop§	18.0	14.3	83.3	92.9	60.8	74.5
17. Wage work off the farm	50.0	52.9	52.4	47.6	47.1	56.9
18. Change of dwelling during past 10 years	50.0*	73.9*	51.3	55.3	68.6*	96.1*
19. Membership in church	76.9	69.2	71.4	66.7	50.0	54.9

\* Differences between means or percentages are significant at least to 5 percent level.

† Figure in Sample I refers to total family cash income, in Sample II to net farm cash income, and in Sample III to net family cash income.

‡ Average school grades completed by operator and wife.

§ In Sample III, figures refer to "small general" farms with or without cotton.

by a near random selection of farmers in nine townships of south-eastern Oklahoma.<sup>5</sup> The four factors used as controls were (1) age of operator, (2) number of acres in farm, (3) number of acres cultivated, and (4) number of milk cows and beef cattle.

It can be seen from Table 1 that the range in the size of farms in the three samples is wide. Although the factors controlled in each sample differ somewhat because the same data were not obtained in each survey, at least these two variables are held constant: age

<sup>4</sup> See Robert T. McMillan, *Social Factors Related to Farm Housing in Southern Oklahoma*, Stillwater: Oklahoma Agri. Exper. Sta. Tech. Bull. No. T-22, October, 1945, pp. 25-28.

<sup>5</sup> *Ibid.*

of operator and size of farm unit. Undoubtedly, other factors should be controlled, as subsequent comparisons suggest, but it should be stressed that in the method employed each additional factor used as a control leads to a sharp shrinkage of cases.

The results of comparing two carefully controlled tenure groups on 19 items, with few exceptions show rather small and unimportant differences (Table 2). Among 53 comparisons, only 16 differences are statistically significant. However, the differences are in favor of farm owners in most instances. Obviously, the controlling of factors which cause variations within tenure groups minimizes greatly the differences so often implicitly, if not explicitly, attributed to tenure. Attention should be given to a few of the differences observed.

In all three samples, farm owners exceed tenants in the average numbers of milk cows and beef cattle owned. Though the difference is statistically significant in only one comparison, the consistent direction of difference leads to the conclusion that, in Oklahoma, owners on the average possess more milk cows and beef cattle than tenants.

With reference to value of farm machinery, the results shown in Table 2 are inconsistent for the two controlled samples studied, but the original samples indicate rather wide differences in favor of farm owners. Among the original cases of Sample I, the average values of farm machinery for owners and tenants are \$213 and \$111, respectively. In Sample II, the corresponding figures for owners and tenants are, respectively, \$1644 and \$1272. Obviously, in the area of Sample II, the amount of farm machinery owned is less dependent upon the factor of tenure than it is upon the amount of cultivated acreage.<sup>6</sup> Roughly, the value of machinery seems to reflect the degree of mechanization on farms. In Sample I, farm owners hold a clearcut advantage over tenants in the proportions possessing a tractor. In Sample II, the difference favors tenants, but in the original survey higher percentages of owners than tenants have tractors. Since it is known generally that a rather high correlation exists between size of farm and possession of tractor, the conclusion is warranted that differences in farm mechanization due to tenure are small.

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<sup>6</sup> In Sample II, the acres in crop land is 148.4 for owners and 156.6 for tenants. In the original sample, these figures are 195.1 and 167.9 for owners and tenants, respectively.

In all samples, the cash income of owners is larger than that of tenants, and in two samples the differences in averages are statistically significant. However, the disparity in incomes between the two tenure groups is reduced sharply when size of unit is held constant.<sup>7</sup> Size of farm is perhaps the most important variable in the analysis of farm business, and failure to make allowance for differences within tenure groups may lead to erroneous conclusions as to the real source of income variation.

Farm owners have a decisive advantage over tenants with respect to the proportions receiving benefit some time during earning life from a homestead, Indian allotment, inheritance, or gift. Similarly, there is a strong indication that the higher tenure of their parents may be a relevant factor in explaining the superiority of owners over tenants on certain items.

The data show no appreciable difference in the percentages of owners and tenants situated on farms having the "best" combination of soils. Frequency distributions of the original cases by soil types confirm this point.

Generalizations concerning the relationship of owners and tenants with the production of wheat or cotton in Oklahoma need to be stated carefully. It is true that in the northwestern part of the state where the percentages of farm tenancy are comparatively small, wheat is the major cash crop. In the counties of southern Oklahoma where the proportion of tenancy is high, cotton is the chief money crop. But, in Samples I and II, neither owners nor tenants preponderantly engage in the production of cotton. In southeastern Oklahoma, where self-sufficing agriculture predominates, a significantly higher percentage of tenants than owners operate "general" farms. Relatively more owners than tenants in that area stress the production of livestock or such crop specialties as spinach, beans, and potatoes.

The three samples do not indicate uniform differences with respect to the proportions in each tenure group reporting work off the farm. In southwestern Oklahoma where Sample II was taken, several more owners than tenants reported doing planting and combining of wheat for hire on neighboring farms. Thus, the type of work available seems to be one practical consideration in deter-

<sup>7</sup> In the original samples, the average incomes, in dollars, are as follows:

	<i>Sample I</i>	<i>Sample II</i>	<i>Sample III</i>
Owners	1628	2135	828
Tenants	949	1223	621



mining whether owners and tenants become laborers off the farm.

Usually, Oklahoma studies have indicated that because their families are younger, tenants have a larger average number of persons per household than owners. With adjustments made for age of operator, these differences in size are reduced. In Sample I, tenant households are reliably larger than owners households, but in Samples II and III the differences are small and inconsistent. Similarly, no uniform differences can be observed in the average number of children born per family. It has been shown elsewhere that only extremely large numbers of children prevent families from achieving farm ownership.<sup>8</sup>

Two items which reflect the most consistent and clearcut differences between the equated groups of owners and tenants are housing and socioeconomic status. It is to be expected that landlords will not furnish tenants with dwellings comparable in quality to those of owners. Furthermore, tenants do not, as a rule, accumulate household equipment commensurate with that of owners. Differences in age, wealth, income, and migration of farmers account for much of this difference. Sewell's socioeconomic status scale contains 36 items relating to materials and cultural possessions and social participation.<sup>9</sup> The persistence with which this scale differentiates owners and tenants leaves no doubt that owners as a group possess a higher status than tenants.

Nearly all studies show that tenants move more frequently than owners, but, again, differences in ages of operators are responsible for this disparity. However, even when the age factor is controlled, tenants change dwellings more often than owners. Therefore, it is safe to generalize that nonowners of farms are more migratory than owners.

As one measure of participation in the social organization of the community, membership in a church appears to be somewhat more prevalent among owners than tenants, but the differences are neither uniform nor statistically reliable. It is possible, therefore, that size of operating unit is fully as important as tenure in explaining this variation between tenure groups.<sup>10</sup>

This study of differences on specified farm and family items be-

<sup>8</sup> Robert T. McMillan and Otis Durant Duncan, *Social Factors of Farm Ownership in Oklahoma*, Stillwater: Oklahoma Agri. Exper. Sta. Bull. No. B-289, November, 1945, pp. 20-22.

<sup>9</sup> W. H. Sewell, *op. cit.*, pp. 51-52.

<sup>10</sup> See Otis Durant Duncan, "Relation of Tenure and Economic Status of Farmers to Church Membership," *Social Forces* XI, 1933, p. 542.

tween groups of owners and tenants controlled for age of operator, size of farm and other items points to the conclusion that much of the variation usually ascribed to tenure actually is due to other factors. On five items—cash income, housing score, socioeconomic status score, inheritances and government land grants, and migration—the evidence presented shows persistent and reliable differences in favor of owners. With respect to the remaining items studied, the differences between tenure groups either are inconsistent or not statistically significant.

The experimental design similar to that employed in this study deserves wider use than it has received in farm research.<sup>11</sup> As a technique for handling complex data, it is not comparable in precision to methods of variance, partial or multiple correlation, or factor analysis. But these tools often are not applicable when some variables, like tenure, are nonquantitative in nature, and in such analyses the experimental design is useful. Far more important, the experimental design furnishes social scientists with a much-needed technique for conducting observation under controlled conditions.

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### GRAIN MARKET FORCES IN THE LIGHT OF INVERSE CARRYING CHARGES

THE traditional view of the price-making forces which are centered in the organized grain exchanges is that buyers, having once ascertained the size of a crop, will bid for cash grain at prices which increase through the season by amounts just adequate to cover the costs of storage from harvest to delivery date. Futures prices accordingly would be level at the price cash grain is expected to reach in the delivery month. This view also sets limits upon the divergence of cash and futures prices: an upper limit of the cost of storage which is presumably implemented by the competition of elevator operators for any excess over these costs, and a lower limit resulting from the refusal of elevators to buy grain when there is no "carrying charge."

<sup>11</sup> For an example in farm management research, see Wylie D. Goodsell, "Paired and Group Observations Contrasted," *Papers Presented At Farm Management Statistical Clinic*, Urbana: University of Illinois Agri. Exper. Sta., Dept. of Agricultural Economics, March, 1942 (Mimeographed) pp. 11-18.

This theoretical construction is plausible, and it does rationalize successfully the course of cash grain prices. This may be seen in Professor Vaile's article in the July, 1944, *Journal of Marketing* "Cash and Future Prices of Corn," p. 53, where the 33-year average of Chicago cash corn prices are plotted and show the expected pattern. However, the theory is inadequate to explain the observed pattern of futures prices (see Vaile) and it has nothing to offer in explanation of those periods in which large and prolonged "inverse" carrying charges have existed. The concept therefore needs to be modified and supplemented.

The present paper is devoted to this process of amendment, and will use the cash and futures prices of No. 1 Northern Spring Wheat in the Minneapolis market during the eleven years 1934-44 as a background for the factual references. Since the process of hedging includes the shifting of futures sales contracts from one delivery month to a more distant one as the year progresses, as well as the original sale of a future when the actual ("cash") grain is acquired, the term "carrying charge" will be used here, as in the trade, to refer to the difference between the prices of two different futures as well as the difference between the price of cash grain and a future at any date.

Two periods of large inverse carrying charges have appeared in the American grain markets—1920-21 and the decade of the 1930's. The latter is by far the more prolonged one; its reflection in Minneapolis wheat prices may be seen in the accompanying table. The lower portion of the table gives monthly figures for the visible supply of wheat in the United States and annual figures for the United States spring wheat crop; these are given as the most important supply factors to be taken into account in interpreting the price data. The upper portion of the table presents data descriptive of carrying charges. The future-to-future carrying charges, or spreads, are the average of weekly closing price spreads of the May-July, Sept.-Dec., and Dec.-May contracts, and represent trading periods entered at the dates Feb. 28, July 31, and Oct. 15, respectively. The July-Sept. spread was omitted because it represents the change-over from old to new crop and so involves more than the (presumed) seasonal carrying charges. The cash-to-future carrying charges are the average of weekly closing price spreads of the No. 1 Northern Spring wheat (cash) and the May or Dec. future. These data represent trading periods from Jan. 1

to May 31 and Sept. 1 to Dec. 31. Here again the period of crop change-over has been omitted because of the extraneous element it would introduce.

It can be seen from the table that inverse carrying charges are associated with low supplies and low crops, and that the future-to-future carrying charge fluctuated less widely during the period in question than did the cash-to-future spread. It has been noted else-

CARRYING CHARGES IN THE MINNEAPOLIS MARKET FOR NO. 1 NORTHERN  
SPRING WHEAT AND U. S. WHEAT CROPS AND SUPPLIES  
1934-1944, inc.  
(Negative values indicated by -)

	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
Carrying Charges—future-to-future (in cents)											
May-July	.3	-4.8	-4.1	-6.1	-2.6	.3	-.6	.9	1.7	.7	-1.3
Sept.-Dec.	-1.0	-2.7	-3.5	-1.3	.1	.6	1.4	2.2	3.0	1.5	-.7
Dec.-May	-1.8	-2.9	-4.7	-.7	1.4	1.0	.5	4.2	3.8	.2	-1.8
Carrying Charges—cash-to-future (in cents)											
Jan. 1-											
May 31	-3.9	-5.8	-11.4	-6.4	-5.1	-4.1	-2.6	-1.7	2.8	-.5	-.8
Sept. 1-											
Dec. 31	-5.3	-10.4	-7.3	-5.7	-4.7	-3.1	-.3	3.8	1.1	-2.3	-3.3
U. S. Spring Wheat Crop (in millions of bu.)											
	91	161	106	190	244	182	224	272	278	310	315
U. S. Visible Wheat Supply—monthly averages of weekly data (in millions of bu.)											
January	117	77	68	53	77	108	113	143	215	195	112
February	106	66	60	43	64	93	103	156	209	181	103
March	95	53	49	35	55	81	97	127	201	174	106
April	87	43	43	29	45	72	97	120	196	172	111
May	79	34	32	19	34	62	98	118	188	151	97
June	75	26	24	11	26	61	88	121	185	135	81
July	99	25	41	50	61	110	122	165	201	164	111
August	114	48	74	113	105	146	159	213	217	189	158
September	113	67	77	130	123	149	172	226	218	179	167
October	106	77	73	127	125	139	169	231	221	158	164
November	97	77	68	112	125	132	161	227	217	140	154
December	89	73	61	94	118	123	151	220	206	121	136

Source: Annual reports of the Chamber of Commerce of Minneapolis.

where that abnormality in the current and future price relationships is correlated with supplies,<sup>1</sup> but no adequate explanation of the inverse relationship has been offered.

In reading the table it should be borne in mind that times of scarcity, by conventional theory, while involving high prices would nevertheless permit the usual compensation for those who store

<sup>1</sup> Sidney Hoos and Holbrook Working, "Price Relations of Liverpool Wheat Futures," *Wheat Studies*, XVII (Nov. 1940), p. 104.

the grain. Exactly the opposite happens. It appears that an hypothesis adequate to explain this phenomena must consist of the following two parts: (1) The future, as against the present, is discounted. (2) Cash and futures prices, though related, are not equivalents aside from the time element, at least in the United States wheat market.

Support for the first part of the foregoing explanation is found in the data on the average course of futures prices compiled by Professor Vaile (*Journal of Marketing*, July, 1944). There it was disclosed that futures prices, rather than being level, were, on the average, consistently higher at the close of the trading period for each future than they had been at the beginning. The December future stands alone in the Vaile study in that it ended, on the average, at the same level at which it started. This suggests strongly that traders have not been willing, at the start of trading in a particular future, to give full effect in their commitments to the forces which existed at the time, and that only after the passage of time and the confirmation of what theory would have predicted at the start were the prices revised upward. The mere fact that future events always bear some degree of uncertainty is perhaps sufficient to justify a discounting of expectations.

A description of the attitudes and interests of millers will illuminate both the first and second parts of the hypothesis offered above. This must be prefaced with a statement of the fact that a future contract for wheat is not equivalent to the purchase of the same "grade" in the cash market on the same terms. The grades used for trading generally in grains in the United States are the Federal grades established in 1917. In the case of wheat these grades provide for weight and other factors, but omit the quality which is perhaps of chief importance to the flour miller—the protein content. Since the miller cannot rely upon receiving wheat of desirable milling quality if he takes delivery on a futures contract (and only the minimum grade will be delivered by a prudent elevator operator), he will prefer to buy grain in the cash market and to use the futures contract for hedging purposes only. Obviously it is not possible to hedge the premium, if any, paid for protein content. Since the miller is anxious in times of scarcity to obtain actual wheat of good milling quality in order to assure continued operations, and since he cannot get it, usually, by taking delivery on

contract for the standard grade, it is understandable that he will bid a premium over the futures price to be assured of supplies and of their satisfactory character.

Certain other considerations reenforce this view. Exporters face the same needs as millers, with the added emphasis on time of delivery which characterizes their operations. Since the seller of a futures contract has the option to deliver on any day of the delivery month, the exporter cannot as a rule rely on such a contract as a source of cash grain even apart from considerations of quality. Again, if millers have storage space available they are able to pay premiums up to the value of the normal carrying charges and so destroy the expected relationship, but this should not be expected to occur on the average in view of their own need for compensation for storage. Some of the discrepancy may be explained at times by unusually favorable mixing opportunities; i.e., elevator operators may bid up the value of cash grain relative to the future in order to obtain grain which offers opportunity for considerable upgrading through the processes of cleaning, mixing and reconditioning (as drying).

Although there is room for improvement in the grading system, it is not thought that this would remove the phenomenon of inverse carrying charges. Whatever grading system is used must be rigid, but the crop varies from year to year with the result that various factors of quality will be more important in one year than another and premiums will appear.

Further reference to the table will reveal that the future-to-future spread tends strongly to follow the seasonal pattern of visible supplies. This once more supports the general conclusion of this paper: that very short-run conditions of supply are the most important in determining the existence of positive carrying charges; in other words, the organized grain market is not as efficient as has usually been supposed in the parceling out of a crop. This conclusion will not be very surprising if it be recalled that the first futures trading of the type discussed here was that inaugurated in London thirty years before grain futures were traded in the United States, and that this first trading was not in grain at all, but in metals—where there is no seasonal problem whatever, and hence, no captivating theory to “explain” normal price relationships.

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## FARM PRICES AND INDUSTRIAL WAGES

IN THE February issue of this *Journal*, Frank A. Pearson and Don Paarlberg write about the Factors contributing to farm prices under the title, "Sixty Million Jobs and Six Million Farmers." As suggested by the title, their purpose is to disprove, if possible, the currently popular idea that the welfare of the farmer is closely tied up with that of the city worker, and that when the city workers are fully employed at good wages, that farm prices will be high and the demand for farm products sufficient to give the farmers a good income, and that, conversely, when the urban workers are unemployed, and when they are working at low wages, farm prices will be low and the demand for farm products very poor.

Professors Pearson and Paarlberg start out by saying that we have had several theories explaining the basis for farm prices, among which are: "That all prosperity springs from the soil," that "the price of food products depends upon the supply of money," and that "the well-being of the farmer depends upon scarcity," and finally that "it is dependent upon wage earners."

They maintain that those who have sought to explain the changes in farm prices on the basis of these different things have tried to make each of them the sole determining factor. From this, Professors Pearson and Paarlberg conclude that all of these ideas must be wrong, since obviously each of these conflicting theories can not alone explain the changes in farm prices.

In the first place, one could question very seriously whether economists ever claimed that any of these theories was the sole determining factor in farm prices. Surely those who show the close correlation between farm prices and the wages of urban workers during the past 20 years make no such claim. They would unquestionably be willing to agree with Professors Pearson and Paarlberg that there are many factors, some of which are world-wide in scope, and further agree with them that they involve the world supply and demand for commodities and the world supply and demand for money.

But they would, however, still point out that in order to get a true picture of the forces which now determine farm prices in the United States that each of the various factors would have to be given weight in accordance with its influence upon prices, and that when this had been done, the overwhelming portion of the weight

would be placed upon the influence of the number of urban workers employed, and the rate of their pay in proportion to the prices of the goods they produce. The other factors would all have their influence, and would have to be considered and given weights according to their effect upon prices. This would be especially significant if conditions should change to any sizable degree. In fact, under rapidly changing conditions, the weights assigned to each factor would have to be changed very greatly.

These things are all in line with the use of different explanations of what determines farm prices. The tendency has been to emphasize the one factor which appeared to have the most influence at that particular time.

There was a time when the theory that all prosperity springs from the soil had a strong factual basis. In the United States prior to 1860, the number of people engaged in agricultural pursuits represented more than 60 percent of the total population. Prior to 1830 it was more than 70 percent. Thus during this period the rest of the population was far more influenced by what happened in agriculture than the farmers were by what happened to the rest of society. This was especially true because most of the nonfarm population were engaged in supplying the farmers with goods and services.

Since the Civil War period other factors have become more and more important. With the total number of people engaged in agricultural pursuits declining from 60 percent of the population in 1860 to only about 16 percent at the present time, one can see that influence of the nonfarm population on agriculture and agricultural prices is now even greater than the influence of what happened on the agricultural side had on the nonfarm population before 1860. Thus instead of the theory that all prosperity springs from the soil disproving the theory that farm prosperity now depends upon the welfare of the urban workers, it fits right into the picture perfectly and substantiates the present idea.

The same is true with the theory that the price of farm products depends upon the supply of money. This is part of the quantity theory of money which enjoyed a justified popularity so long as the amount of bank credit and thus the amount of money in circulation, depended to a very large degree upon the amount of gold or the credit policy of the central bank, or the Federal Reserve Banks since 1913. When gold was plentiful, more credit was extended and

prices and the supply of money in circulation rose together. When gold was short, credit was contracted and a contraction of currency and an enforced deflation of prices ensued. Under such conditions an almost perfect correlation between farm prices and the amount of money in circulation would exist because both are effects of the same cause.

Under the working of the Federal Reserve Banks, the amount of gold has not been the criterion upon which the expansion and contraction of credit has been based. The aim has been to supply adequate credit to handle the existing volume of business. Under the working of this policy the amount of money in circulation and prices can have a very close correlation as long as sufficient demand for credit exists to make the controls available to the Federal Reserve system effective. When prices fall and the demand for credit slackens, the Federal Reserve Board can lower the rediscount rate and take other actions to make credit easier and thus promote a greater volume of credit and currency and a corresponding increase in prices. When prices, business and credit become over-active because of the forces making for higher prices and more active business, the Federal Reserve Board can reverse the process and help to bring about a contraction of credit and a fall in prices. In all these workings a very close correlation would exist between the amount of money in circulation and prices.

Then came the Great Depression of 1929-33, which resulted in the complete abandonment of the gold standard as a controller of credit and prices throughout the world. The depression also created conditions under which the controls over credit set up under the Federal Reserve Bank Act failed to halt the downward spiral of production and prices. These controls broke down because they were based upon the idea that there would always be a demand for credit if the price were low enough, and that all that was necessary was to lower the restrictions and give the bankers more money to lend and they would loan out more money. So long as there were a surplus of prospective borrowers and the bankers were turning down requests for loans this worked tolerably well. But when the bankers sat at their desks all day and waited in vain for borrowers who could give anything like sufficient collateral to make a sound loan, then the controls no longer worked.

From 1929 to 1941 the problem has been one of finding means of getting idle money into circulation instead of keeping money from

circulating too rapidly. Therefore, the amount of money "outside of banks" has not meant money in circulation as it did prior to 1929. Thus, the idea that farm prices depend upon the amount of money in circulation and the quantitative theory of money of which it is a part fail to have the same basis in fact that they had previously. The amount of money in circulation has meant much less as far as prices and production is concerned. If we should return to a condition under which money outside of banks is actually in circulation, we will again return to a condition under which the quantitative theory of money will again have more of a basis of fact.

As Professors Pearson and Paarlberg have so aptly pointed out in their article, the very conditions which uproot one theory very often prepare the ground for the next one. This is true because of the tendency to pick upon the seemingly crucial factor in the changing conditions. As soon as the surplus of idle money destroyed the perfectly sound idea that the amount of money determined farm prices, the idea that scarcity of goods determines prices—agricultural prices as well as all others—began to take root. In fact the very thing which destroyed the factual basis for the quantity theory of money established the idea that scarcity controls prices.

At the very start of the depression in 1929, industry put into effect a plan of curtailed production so as to be able to create a shortage of goods and maintain prices in the face of a declining market. Much of industry could and did create enough of a scarcity of goods so as to maintain prices regardless of demand. Throughout the entire period the Hoover Farm Board tried to maintain prices by buying and holding agricultural products off the market. But in spite of anything which the Farm Board could do, prices continued downward. In the end it was forced to admit that it was powerless to do anything to hold up prices unless it had the power to reduce production, and that so long as industry had the ability and the willingness to reduce production and wages and yet maintain prices, that agriculture had little choice except to follow the example of industry and do the same. Thus, during the 1929-33 period, with the export market almost extinct, and with no hope of counteracting the action of industry, one can see that the curtailing of farm production was the only method which seemed to offer any immediate solution to the problem of agricultural surpluses.

This brings us to the last and most important theory of farm prices, namely, that they depend largely upon the wages of urban workers. In order to demonstrate that there is no connection between the wages of urban workers and farm prices, Professors Pearson and Paarlberg give the records of two different periods in American history when farm prices went, down and industrial wages actually went up. One would expect that to happen during both of the periods which were selected. These two periods were from 1840 to 1849 and from 1880 to 1896. They were both periods during which the expansion of industry and the mechanization and expansion of agriculture were proceeding at a very rapid rate. New inventions, both in agriculture and in industry were being put into practice throughout the world. They reduced the unit cost of both agricultural and industrial products. The scythe and cradle gave way to the mower, the reaper and the binder. Other machines equally important were put into general use in large numbers. Then, too, vast new areas were opened to production, and as the waves of settlers spread across the prairies of the Middle West, railroads were pushed through the mountains and across the plains, canals were built connecting the Great Lakes with the ocean and connecting other bodies of water, and steamboats were put into operation on the canals, lakes and rivers. These new forms of transportation brought the farm products to the markets of the World in ever growing streams. Is there any wonder that farm prices declined?

The surprising thing is that farm prices didn't decline even more than they did. Farm prices probably would have declined even more if it hadn't been for the rapid increase in the number of industrial workers and the increase in wages about which Professors Pearson and Paarlberg speak. Only the rapid growth of the cities and the advance in the wages of the city workers enabled the greatly increased farm production to be marketed at prices only slightly below those which prevailed during periods when production and transportation costs were much higher. Another factor is the fact that the greatly reduced transportation costs may have accounted for most of the decline in farm prices leaving the actual prices which the farmer received for his crops on the farm practically the same as before, and leaving his actual income greatly increased because of the lower unit cost of production.

Professors Pearson and Paarlberg present their own formula:

## World price level

$$= \frac{\text{World supply money}}{\text{World supply commodities}} \times \frac{\text{World demand commodities}}{\text{World demand money}},$$

This formula fits into the conditions which existed prior to 1929 and is appropriate for describing the price-making forces under the operation of the gold standard and other devices for controlling the expansion and contraction of credit. Under such conditions, one could apply the various factors to the formula and get the world price level. But since 1930 it hasn't worked that way. We find, for example, that from 1928 to 1938 gold production doubled and its value increased three and a half times. Yet in spite of a decreased supply of commodities, the price level of agricultural products was considerably below the 1928 level. Obviously an increased supply of gold and a decreased supply of commodities should have resulted in a higher price level unless the demand for goods, or the demand for money, or both, were below what one would expect.

Therefore, one must conclude after applying the facts to the Pearson-Paarlberg formula that the thing to do is to analyze the demand for goods and the demand for money to see why they were so low. This Professors Pearson and Paarlberg fail to do. In fact, they do just the opposite. They look over the world scene and conclude that the whole affair is so complicated and complex that we have no hope of ever understanding it, much less doing anything about it. They conclude that the whole process is controlled by some "great but unknown force." One wonders just how they work this great unknown force into their formula, or what is the value of having a formula if the great unknown force determines everything anyway.

They also conclude that we must remember that wages are a cost of production to farmers and business men and are a factor in determining profits, which in turn are the sole aim of a free-enterprise system, and that if we do remember those facts that everything will come out all right. This explanation should satisfy those industrialists who do not have to depend upon demand for their products to create a price or market for their goods and, therefore, are in a position to control their prices and production and determine their profits irrespective of market conditions. Perhaps these industrialists will be willing to furnish the "money to teach the intellectual classes that the welfare of the farmers is not dependent



upon the workers' pay envelope," as Professors Pearson and Paarlberg feel is desirable. Some industrialists have always looked upon low wages and high prices as the key to greater profits, and where they are able to control their production, and where they have markets with inelastic demands, they have been comparatively successful even during the worst of the depression. But the other industrialists and the farmers will not be enthusiastic about spending money to proselytize the intellectual classes to that point of view. More and more of the industrialists as well as the farmers are coming to realize that their best interest lies in full employment and full production based upon adequate wages for workers, adequate prices for farmers and reasonable profits at full capacity production. In the 1944 election both Presidential candidates endorsed such a policy.

Like the other theories, this has arisen from the ashes of its predecessor. The farmers and the more enlightened industrialists and business men saw that the idea of scarcity-produced prices could work only for those who could maintain an advantage over the rest of society and that their gain was at the expense of society as a whole; that it was little more than exacting tribute in the best robber-baron tradition. They saw that it produced the dilemma of idle men, idle machines and idle money. They saw that in order for everyone to gain, that some formula had to be adopted to break the vicious circle which this dilemma presents. What, one may ask, do Professor Pearsons and Paarlberg propose to use to break this deflationary spiral? Do not their proposals play directly into the hands of the powerful vested interests?

The simplest way to break the deflation spiral, which is actually what the dilemma of idle men, idle money and idle machines is, would be to take some of the idle money and use it to pay higher wages instead of cutting wages in the name of greater profits as Professors Pearson and Paarlberg suggest. With higher wages the workers will buy more goods, and the increased production, even with higher labor costs would result in lower unit costs. Thus higher wages will result in increased production, greater markets for goods, and actually greater profits instead of less.

At the present time we are faced with a pent up demand for goods and a surplus of available buying power. But once these war-created shortages are met, or the surplus buying power drained off through inflationary price increases, we will again have a surplus

of goods which can not be absorbed at the existing price level. The farmers will have a surplus of goods which they can not sell, and thus will be unable to buy the things which the city workers make. In turn, without jobs, the city workers will be unable to buy the farm products and other things and will add to the deflation spiral.

Depressions like accidents don't just happen; they are caused, and the causes of depressions like the cause of accidents can and should be remedied. Because the farmer is so hard hit by depressions, it is especially important for agricultural economists to see clearly the strategic importance of full employment at lucrative wages in sustaining the demand for farm products. Wages are a cost of production as Professors Pearson and Paarlberg point out, but they are also a market for goods. Profits, which are the sole aim of the advocates of the Pearson-Paarlberg line, must come out of the selling price of the goods, and unlike wages are not always as reliable a source of markets for goods as wages are. Thus, the extra money which goes to the workers is a much more reliable source of buying power than that which goes into profits. Therefore, the extra money which goes into wages will almost surely mean greater profits, but the extra money which goes into profits may actually destroy the ability to make profits in the future. As long as industry has idle facilities, and as long as there are idle workers, we can increase farm prices and the market for farm products by increasing the wages of the city workers, and can do so without decreasing profits.

This is the factual basis upon which rests the theory that the prices of farm products depends upon the wages of the workers. What is even more important, by applying this theory to a given set of facts one can predict with confidence what the outcome will be.

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#### A NOTE ON MINIMUM WAGES AND AGRICULTURAL WELFARE

THE Fair Labor Standards Act of 1938<sup>1</sup> established, among other things, certain requirements with respect to minimum wage rates and maximum hours for workers engaged in many ac-

<sup>1</sup> *Public*—No. 718—75th Congress, Chapter 676—3rd Session.

tivities. The wage objective of the act "... a universal minimum wage of 40 cents an hour in each industry engaged in commerce or in the production of goods for commerce ..." <sup>2</sup> has largely been attained and it is proposed currently to increase the minimum wage level to some figure above 40 cents per hour, possibly 65 cents, with provision for further increases at periodic intervals. Also, it is proposed to extend the coverage of the act to include employees of chain and large independent retail selling and retail servicing enterprises, of industries processing agricultural or horticultural commodities or fish, and some other groups. Exemption of agricultural labor from the wage and hour provisions of the act would be continued under the current proposals.

The purpose and justification of the act are set forth in the "finding and declaration of policy" as follows:

"The Congress hereby finds that the existence, in industries engaged in commerce or in the production of goods for commerce, of labor conditions detrimental to the maintenance of the minimum standard of living necessary for health, efficiency, and general well-being of workers (1) causes commerce and the channels and instrumentalities of commerce to be used to spread and perpetuate such labor conditions among the workers of the several States; (2) burdens commerce and the free flow of goods in commerce; (3) constitutes an unfair method of competition in commerce; (4) leads to labor disputes burdening and obstructing commerce and the free flow of goods in commerce; and (5) interferes with the orderly and fair marketing of goods in commerce.

"It is hereby declared to be the policy of this Act, through the exercise by Congress of its power to regulate commerce among the several States, to correct and as rapidly as practicable to eliminate the conditions above referred to in such industries without substantially curtailing employment or earning power."<sup>1</sup>

The arguments offered in support of increasing minimum wage rates at this time are many and varied. It is pointed out that the cost of living has increased enough during recent years to wipe out a substantial part of the gain in wages established by the 1938 Act and argued that our expanded economy makes it "practical" at this time to increase minimum wage rates. Emphasis is placed upon "the minimum standard of living necessary for health, efficiency and general well-being of workers." It is said that "our increased productivity must be used to raise the standards of those at the bottom of the economic ladder"; that "failure to advance minimum

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<sup>2</sup> *Ibid.*, page 5.

wages regularly . . . deprives millions of a fair share in the nation's growing wealth"; that "a 65 cent minimum wage yields the low-paid worker a smaller proportion of the nation's increased wealth than a 25 cent minimum yielded him . . . (in) 1938."<sup>3</sup>

These arguments rest on the general proposition that a greater portion of the goods and services produced should be channeled to the workers employed at relatively low wage rates. Pointing out that low wage rates result in low incomes and inadequate standards of living the "obvious" solution is urged—an arbitrary increase in wage rates in the lower brackets. It is argued further, that increasing wage rates in the lower brackets will not increase unit labor costs and will exert no inflationary pressure on prices since with larger incomes workers will live better and their productivity will increase.<sup>4</sup>

There is reason to believe that the productivity of many workers would increase with improved diet, recreation, etc. However, there is little reason to anticipate response to an extent and at a rate which will coincide with an arbitrary scale of adjustments in wage rates such as was established in the 1938 act or as is provided in the proposed amendments to the 1938 act. If it were clearly established that wage rates could be increased without increasing per unit labor costs or curtailing employment, it is doubtful that an act of Congress would be needed to effect such increases, particularly during a period of active demand for goods and services.

Although not mentioned in the committee report bearing on the proposed amendments, this attack upon the problem of low incomes assumes that the present great range in workers' incomes will be reduced by arbitrarily increasing rates of pay to some of the workers in the lower brackets. Unless this wide range in incomes was narrowed the relative position in society of the low wage worker would not be improved; that is, his income would demand no greater portion of the total goods and services produced. Insofar as the present range in incomes results from the relative productivity and scarcity of labor of various skills, or from monopolistic elements in the labor market, arbitrarily increasing rates of pay to part of the workers in the lower brackets would not, in itself, materially affect these variations in incomes. This implies that some

<sup>3</sup> Report No. 1012, Calendar No. 1021, 79th Congress, 2nd Session, pages 4-5.

<sup>4</sup> *Ibid.*, pages 6-7

alternative attack on the problem of inadequate standards of living might prove more fruitful.

The authors of the act recognized that wage rates could not be increased arbitrarily without some curtailment of employment resulting. The phrase, "without substantially curtailing employment," appears in the law in connection with provisions permitting more rapid increases in minimum wage rates than are required in the basic provisions of the law through the use of industry committees. However, no provision is made for modifying the minimum wage rates established in case substantial curtailment of employment should result at some time.

Such minimum wage legislation raises two important questions for the agricultural sector of society: (1) What is the effect of such legislation on those engaged in agricultural production? (2) How would these effects be modified if the minimum wage maximum hour provisions of the act were extended to include employees engaged in agriculture?

## II

To arrive at some approximation of an answer to our first question it is necessary to consider first of all the effects of this type of legislation on non-agricultural employment and income. Obviously, if a significant portion of the employees engaged in activities covered by the act are earning less than the minimum wage rate established at a particular time their rates of pay would have to be adjusted upward. The distribution of workers in manufacturing industries according to hourly wage rates has been estimated several times during recent years. These data indicate the proportion of workers in manufacturing industries that would be affected directly by various minimum hourly wage rates on the dates indicated. (See Table 1.) Also, the data indicate the extent of increases in hourly wage rates in manufacturing industries during recent years and changes in distribution of workers by wage rate groups. On the basis of the estimates for 1945 it was estimated that 20 percent of the workers in manufacturing industries were paid less than 65 cents per hour. Two years earlier about 28 percent would have been included in such a group while at the beginning of 1941 over half the workers in manufacturing industries would have been affected directly by a 65 cent per hour minimum wage requirement.

The practice of progressively increasing legal minimum wage rates as prices and employment rise raises a question as to the effects which may be experienced if the economy should adjust to a lower level of wages in the future. The 1938 act, as well as the currently proposed amendments to it, makes no provision for adjusting minimum wage rates in accordance with changes in the general level of wages or commodity prices. During World War I hourly earnings of factory workers in the United States increased rapidly

TABLE 1. ESTIMATED DISTRIBUTION OF WORKERS IN MANUFACTURING INDUSTRIES BY HOURLY WAGE RATES\*

Hourly rates	January 1941	June 1943	Summer 1945
	(percent)	(percent)	(percent)
Under 40 cents.....	17	2	**
40 and under 50 cents.....	14	8	3
50 and under 60 cents.....	15	12	10
60 and under 70 cents.....	15	11	12
70 and under 80 cents.....	12	12	12
80 and under 90 cents.....	9	13	12
90 and under 100 cents.....	6	11	12
100 and under 110 cents.....	5	9	10
110 and under 120 cents.....	3	7	8
120 and under 130 cents.....	4	7	7
130 and under 140 cents.....	**	3	5
140 and under 150 cents.....	**	2	3
150 cents and over.....	**	3	6

\* *Monthly Labor Review*, U. S. Department of Labor, Washington, D. C. September 1945, page 530; October 1943, page 639.

\*\* Less than one-half of one percent.

reaching an index of 112 in 1920 (1923=100). In the succeeding two years the index of hourly earnings declined about 19 percent to 91 in 1922. Following 1922 hourly earnings increased to an index of 104 in 1924, remained relatively stable through 1926, then advanced to 109 in 1929. From 1921 to 1926 inclusive, the index of hourly factory earnings averaged 100, about 11 percent below the 1920 level.<sup>5</sup> Should a somewhat similar adjustment of wage rates occur in the future, it is clear that the effects of a minimum wage rate established at a time when wage rates are at or near a peak would be accentuated, particularly in the relatively low wage industries, as prices and wages declined.

National figures for all manufacturing industries lumped to-

<sup>5</sup> National Industrial Conferences Board series of hourly earnings of factory workers in 25 industries.



gether conceal many significant considerations. The percentage of workers which fall into various wage rate categories varies widely from one industry to another. This is indicated by data showing the estimated percentage of workers earning less than a specified wage rate in each industry group. Such a breakdown is presented in Table 2 using 65 cents per hour as the basis for comparison. More

TABLE 2. ESTIMATED PERCENTAGE OF WORKERS EARNING LESS THAN 65 CENTS PER HOUR IN MANUFACTURING INDUSTRIES BY INDUSTRY GROUPS, SUMMER 1945\*

All Manufacturing.....	20
Tobacco.....	58
Lumber and Timber.....	54
Textiles.....	47
Apparel.....	38
Furniture.....	37
Leather.....	30
Paper.....	30
Food.....	28
Stone, Clay, and Glass.....	27
Electrical Equipment.....	22
Printing and Publishing.....	21
Chemicals, Petroleum, and Coal Products.....	16
Rubber.....	13
Non-Ferrous Metals.....	8
Iron and Steel.....	7
Machinery.....	4
Transportation Equipment.....	**

\* *Monthly Labor Review*, September 1945, page 530.

\*\* Less than half of one per cent.

than half the workers employed in tobacco manufacturing and the lumber and timber industries earned less than 65 cents per hour, compared to practically none in transportation equipment and 4 percent of those engaged in the machinery manufacturing industries. Food manufacturing industries ranked near the midpoint of the industry groups, reporting 28 percent of their workers with hourly wage rates below 65 cents. This indicates that some industries would have been affected only slightly in 1945 by a minimum wage rate of, say, 65 cents per hour while others would have been affected much more extensively. The number of workers affected at any particular time, obviously, would be determined by the level of minimum wage rate established and the general level of wages and prices.

The wide differences in wage rates by industry groups are associated with a number of factors. Examination of Table 2 suggests

that those industries which employ large amounts of labor relative to capital equipment report the greatest proportion of workers in the lower wage brackets, whereas those industries which combine relatively small amounts of labor with large amounts of capital equipment in the manufacturing processes report relatively high wage rates. Some industries employ relatively more skilled and less unskilled workers than others. The extent and effectiveness of unionization may have some effect on wage rates. Probably the most important influence is the relative abundance or scarcity of labor in the areas where major segments of the various industries are located. Also, wage rates tend to be higher than average for particular types of work in the larger plants,<sup>6</sup> in plants which produce high quality products,<sup>7</sup> and in plants located in large population centers.<sup>8</sup>

An important consideration not revealed in national averages is the wide regional variation in wage rates within industry groups. In the lumber and timber group, for instance, most of the workers in the West Coast area have hourly wage rates of 65 cents or higher. In the Midwest and South wage rates are substantially lower.<sup>9</sup> Data for average hourly earnings of workers in fruit and vegetable canneries in 1943 revealed a similar wage pattern. The highest rates of pay were generally found in the Pacific and Mountain regions and the lowest in the South with the Eastern States generally ranking next to the Pacific Coast in wage rates. For individual states California canneries reported the highest wage rates and Missouri the lowest.<sup>10</sup>

Information on wage rates in non-manufacturing industries is less adequate but the percentage of workers affected directly by any particular minimum wage rate would probably be at least as large as for manufacturing industries (unless specifically exempted due to type of employment). Industry and regional variations in wage rates in non-manufacturing activities would reveal a pattern similar to that indicated for manufacturing industries. It becomes apparent, then, that increasing the legal minimum wage rate will

<sup>6</sup> M. Ada Beney, *Differentials in Industrial Wages and Hours in the United States*, National Industrial Conference Board, New York, 1938, page 23.

<sup>7</sup> *Ibid.*, page 16.

<sup>8</sup> *Ibid.*, page 19.

<sup>9</sup> *Ibid.*, page 13 and U. S. Department of Labor, "Wages in the Basic Lumber Industry," *Monthly Labor Review*, Vol. 61, No. 4, pages 765-76.

<sup>10</sup> U. S. Dept. of Labor, "Wage Rates in Fruit and Vegetable Canners, Summer 1943," *Monthly Labor Review*, Vol. 60, No. 1, pages 134-39.

have much more far reaching effects in some industries and in some areas than in others.

Insofar as wage rates in an industry tend to assume levels in various parts of the country dependent upon the relative abundance and productivity of the various grades of labor in these areas, the application of minimum wage rates at a level which would affect a significant portion of workers would initiate adjustments leading toward the following results:

1. Employment in the industries where marginal costs were increased due to the increase in wage rates, particularly in those segments of the industry located in "low wage areas," would be curtailed. Entrepreneurs would seek a recombination of the factors of production economizing on the factor (labor) which had increased in cost. Wage payments to those workers whose employment continued at the higher rate of pay would increase while incomes to those who were forced to shift to alternative sources of income by the curtailment of employment in their "customary" activity would decrease. The alternatives would consist of employment in an "exempt" activity, self employment, or unemployment and relief. Total wage payments in the industries affected directly would change in a direction and to an extent determined largely by the elasticity of demand for labor in these industries and the extent of the change in marginal cost of labor.<sup>11</sup> The effect upon total wage payments in the economy is uncertain,<sup>12</sup> and might well vary depending upon economic conditions prevailing at the time the change was initiated.

2. The demand for agricultural products would change in accordance with the change in total amount of wage payments and their

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<sup>11</sup> This would vary between industries as well as between individual firms within given industries since demand and cost conditions vary both within and between industries. Consequently, the adjustments made by entrepreneurs would differ and the incidence of the higher labor costs would not be the same in all cases.

<sup>12</sup> There appears to be insufficient data available to indicate definitely whether total wage payments in the economy would be favorably or unfavorably affected. Weir Brown has suggested the possibility of a favorable impact in his article "Some Effects of a Minimum Wage on the Economy as a Whole," *The American Economic Review*, Vol. 30, No. 1, pages 98-107. Other possible results are indicated by Frank Pierson's "Determination of Minimum Wage Rates," *Ibid.*, pages 72-81; Everett E. Hagen, "Elasticity of Demand and a Minimum Wage," *Ibid.*, pages 574-76. M. Bronfenbrenner, "Minimum Wages, Unemployability, and Relief: A Theoretical Note," *The Southern Economic Journal*, Vol. 10, No. 1, pages 52-59; and A. S. Pigou, *Essays in Applied Economics*, London 1930, pages 41-58; J. V. Van Sickle, "Geographical Aspects of a Minimum Wage," *Harvard Business Review*, Vol. 24, No. 3, pages 284-85.

distribution among wage earners. Should total wage payments remain stable or decline and be concentrated in the hands of fewer workers the demand for agricultural products would tend to decline. The effects of such a tendency would be offset to some extent by the alternative sources of income developed by the workers who were displaced and by the increased demand for agricultural products on the part of those who enjoyed increased incomes as a result of continued employment at the higher rates of pay. Prices of goods purchased by farmers, and others, would tend to increase due to the higher labor costs in the manufacture and distribution of these items of commerce.

3. The flow of surplus labor from rural to urban areas would be curtailed as a result of the reduced employment opportunities available to unskilled labor in non-farm employment thereby leading to an accumulation of relatively more people on farms. Wage rates for farm labor, resulting from the curtailment of non-farm employment opportunities and the relative increase in supply of farm labor, would decline. A similar result would be experienced by workers in other "exempt" activities. Per capita incomes of workers engaged in exempt employments would tend to decline as a result of the reduced marginal productivity of the larger amounts of labor being applied to these activities, including both hired and self-employed agricultural workers. Entrepreneurs of relatively large businesses in the exempt activities might not suffer material reduction of incomes due to the decline in costs of hired labor which would offset, at least in part, the "squeeze" on operating margins resulting from the influx of additional people into these activities.

4. Any tendencies now present for industry to locate in the relatively "low wage" areas would be attenuated with the effect of further increasing unemployment (and under-employment) in the present "low wage" areas. Since a large part of the new entrants into the labor force is generated in these areas it becomes desirable to (1) provide additional employment opportunities within such areas and (2) facilitate migration of workers from these to other areas where the reproduction rate of workers is lower. The establishment of relatively high minimum wage rates would restrict the extent of the former type of adjustment leaving the latter as the major ameliorating influence. Both of these types of adjustment are notorious for their "stickiness" and additional mucilage is applied through the application of relatively high minimum wage rates.

5. The "spread" between consumer expenditures for products

originating on farms and farm receipts from these items would tend to increase due to increased labor costs in some of the industries and trades which process and distribute farm products. This increased "spread" would be born by consumers in the form of higher prices paid, by farmers in the form of lower prices received, absorbed by entrepreneurs in the processing and marketing activities, or divided between two or more of these groups. The possibilities

TABLE 3. AVERAGE HOURLY CASH EARNINGS OF HIRED FARM WORKERS, UNITED STATES AND MAJOR REGIONS, MARCH AND SEPTEMBER 1945\*

Area	Hourly Earnings		
	Total	With Meals**	Without Meals***
	cents	cents	cents
United States			
March.....	34	26	39
September.....	40	32	44
Northeast			
March.....	32	21	44
September.....	42	27	55
North Central			
March.....	30	22	40
September.....	35	30	42
South			
March.....	28	23	29
September.....	34	29	34
West			
March.....	59	47	66
September.....	67	49	77

\* *Farm Labor*, U. S. Department of Agriculture, Bureau of Agricultural Economics, Washington, D. C., Dec. 14, 1945, page 16.

\*\* Two or more regular meals per day.

\*\*\* Includes some workers receiving one meal per day.

of absorption by entrepreneurs is limited which indicates that most of the increase would appear in higher prices to consumers and lower prices to farmers. The division between these two groups would be in a ratio, different for each product, determined by the elasticities of demand and supply for each product.

6. A restrictive influence would be exerted on foreign trade. Of those industries which normally produce for export, those in which labor costs were increased materially would be in a less favorable position to compete in foreign markets while producers of commodities normally disposed of in the domestic market would be encouraged to seek higher tariffs to protect them from the competition of foreign producers not covered by the minimum wage regulation.

## III

Would farmers be in any more favorable, or less unfavorable, position if workers employed in agricultural production were *not* exempt from the minimum wage maximum hour provisions of the law?

Data presented in Table 3 indicate a regional wage pattern in agriculture similar to that in manufacturing industries. Agricultural workers in the southern area would be affected more than in other parts of the country by inclusion in the minimum wage law so far as minimum basic hourly wage rate is concerned. The maximum hours provisions would strike with greater impact on farms in the North Central Region where extensive livestock production is combined with crops production. The hours worked per day by hired labor on farms in this region averages higher (10.4 hours in 1945) than for any other. Farm Operators, of course, normally work more hours per day than hired workers.

The number of farm workers (family and hired), 1935-39 annual average, is reported as 10,920,000 of which 2,567,000 (23.5 percent) were hired workers.<sup>13</sup> The 1940 Census reported hired labor on 14.6 percent of the farms for two or more days of the last week of March 1940 and on 18.2 percent of the farms during the last week of September, 1939, a season of near peak agricultural employment. Thirty-seven and one-tenth percent of all farms reported some cash wages paid during 1939. In the Pacific and Mountain States over one-half the farms reported expenditures for hired labor, the highest for any region. It may be concluded that from one-fourth to one-third of the farmers would be affected directly if minimum-wage maximum-hour regulations were extended to agricultural labor.

The data presented in Table 3 may suggest that the present 40 cents per hour minimum wage would cause no significant adjustment in any area except the South. However, the data presented are averages. In the North Central Region average hourly earnings (without meals) of 42 cents in September, 1945, indicate that many of the farm workers in this area were receiving less than 40 cents per hour and would have been affected to some extent. Even so, the maximum-hour provisions would probably necessitate more adjustment than the minimum-wage requirement in this area, un-

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<sup>13</sup> *Farm Labor*, U. S. Department of Agriculture, Bureau of Agricultural Economics, Washington, D. C., December 14, 1945, page 6.



less agricultural workers were exempted from the overtime pay provision. Minimum hourly wage rates of more than 40 cents would, of course, affect more of the farmers and hired farm workers and to a greater extent.

The general effect on farmers employing hired labor would be the same as upon manufacturers—to raise labor costs. The extent of the effect would vary greatly from area to area and farm to farm. Like manufacturers, farmers would adjust to this new situation by recombining the factors of production in such a manner as to economize on the use of labor, substituting machinery for labor insofar as this was practical and economical. Those farmers who regularly do not employ hired labor, roughly two-thirds of all farmers, would not face this problem. Consequently, costs would be increased on the farms employing hired labor relative to those using only family labor.

The minimum wage provisions would encounter more difficulties in enforcement in agriculture than in other industries. Under any conditions where the worker was willing to work for an effective wage less than the legal minimum established enforcement in this industry would become a practical impossibility. To the extent minimum wage rates were enforced in agriculture the following types of adjustments would be expected:

1. The adjustments made by farmers facing higher labor costs would, in most instances, result in less intensive operation of their farm enterprises and some curtailment of output. While the percentage of all farms included in this group is relatively small, the percentage of total agricultural products marketed which originates on these farms is large. Therefore, some curtailment of output from these farms could have a significant effect on market supplies of agricultural products. Any tendency for an upward movement of farm prices resulting from this adjustment would tend to improve incomes of those farmers who use only family labor, possibly two-thirds of all farmers, relative to those who rely largely on hired labor.

2. Such a change in relative incomes would encourage a reduction in size of the farms employing hired labor and some expansion in size and number of farms employing only family labor. Share-crop and other forms of rental arrangements would be promoted in areas where the economic returns to labor employed on farms normally would be inadequate to pay the minimum wage rates established.

3. Employment on some of the farms normally employing hired

workers would tend to be curtailed, the same as for industrial concerns. On some farms the extent of underemployment of the family members normally working there might be decreased somewhat; if a higher level of farm prices should result, more intensive operation of some farms would be encouraged.

4. To the extent that relatively more people engaged in agriculture due to inability to shift to other employment, average per capita incomes of all people engaged in agriculture would suffer. Some of the extensive under-employment of labor now present in agriculture<sup>14</sup> would become more obvious in the form of outright unemployment. Even so, if alternative employment was not available at the legal minimum wage rate for such unemployed, some of them, as has been customary during periods of depressed business activity in the past, would engage in farming on marginal and sub-marginal land and others would add to the "unhired" labor on existing farms.

5. More farm workers would be hired by the hour and less by the week or month with the distinct possibility that annual *income* to the worker might be increased none at all—unless "time off" can be considered "income." This points up the fact that minimum wage laws in themselves cannot solve the problem of low incomes. To actually accomplish the objective of raising the level of living of low income workers the minimum wage regulation would have to be accompanied by positive measures to increase productivity of those workers made sub-marginal by the level of minimum wage established or by measures which would provide such workers with incomes from public sources since they would be effectively barred from employment by private enterprisers.

#### IV

If any generalization can be made from this analysis it is simply that the adoption of public measures which tend to raise labor costs arbitrarily and thereby curtail employment in some segments of the economy work to the disadvantage of workers employed in those segments of the economy which are exempt from such measures as well as workers made sub-marginal in the "covered" activities. Also, it appears that the majority of farmers, operating the family size business and employing little or no hired labor, would suffer less disadvantage if farm labor were *not* exempt from

<sup>14</sup> See Theodore W. Schultz, *Agriculture in an Unstable Economy*, McGraw-Hill Book Co., New York, 1945, pages 189-201.

minimum wage requirements than by having it exempt, assuming the regulation was enforced as well in agriculture as in other segments of the economy.

The question follows, if the real incomes of low income groups cannot be improved effectively by the establishment of arbitrary minimum wage rates, how can the nation fulfill its implied responsibility of a minimum standard of living to these people? Many possible remedies suggest themselves: liberal relief programs, direct subsidization of housing and food consumption, supplementary income payments, public works programs, etc., in conjunction with pricing labor more realistically in terms of its marginal productivity. However, if the present low incomes of these people results from the low value of marginal product of their labors it would seem that a more direct attack on the problem would involve measures to increase the productivity of such people. Among other things, such measures might include improved educational facilities together with subsistence allowances which make it possible to take advantage of such facilities, specialized training for higher skill jobs, improved job placement including activities directed toward increasing mobility of workers, encouragement of industrial development in areas of relatively abundant labor supplies, and the like. Actions which merely make it easier to live with a sick patient do not cure the patient. A cure can be effected only by eliminating the causes of the illness.

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## AGRICULTURAL STATISTICS IN GERMANY<sup>1</sup>

### *Part I: Agricultural Statistics Prior to the end of World War II<sup>2</sup>*

Comprehensive or "Great Agricultural Holding Census" have been made for many years in Germany in connection with the Gen-

\* The views expressed in this paper represent only those of the author and should not be construed as representing in any way the opinion or judgement of Federal Reserve System officials.

<sup>1</sup> This part of the paper will be limited to the report on the Agricultural Section of the Land Statistical Offices and the Central Statistical Office of the Reich. The gathering of statistical data relative to food and agriculture was sponsored by the Reich Bureau for Statistics (Statistisches Reichsamt) and the Reich Food Administration (Reichsnaehrstand). The program of the Statistisches Reichsamt included principally the gathering of all general agricultural statistics, while the activities of the Reichsnaehrstand pertained more to inquiries as to farm operation, marketing and consumption.

<sup>2</sup> Source of data: *Statistisches Reichsamt*.

eral Census, which includes population, industry, and other phases of economic life and activity. The General Census was taken in 1882, 1895, 1907, 1925, 1933, and 1939. The agricultural part of the census included size of farm, area in cultivation by crop, livestock, laborers, machines etc.

The year 1878 marked the beginning of the collection of current cultivation and harvest statistics in the German Reich, based on instructions from the Federal Council (Bundesrat). Even prior to the foundation of the Reich, 1871, many of the *Laender* (Federal States) had well established statistical offices. Bavaria made a livestock census as early as 1794, while Wuerttemberg completed a viticulture census in 1827. The dates for the so called great census of land utilization, other than the General Census dates, were 1878, 1883, 1900, and 1913. They are directly connected with the fluctuations of the German Foreign Commercial Policy—i.e. according to the national policy of increasing indigenous production by high tariffs on imports or the desire to expand commercial trade agreements with other countries.

As long as Germany followed liberalistic conceptions of economy and allowed relatively free exercise of the forces of supply and demand, the need for agricultural statistics was met largely by estimates of yearly acreage, yield and production of principal crops and numbers of livestock. A census taken about every ten years determined the number of agricultural producers and the general organization of their farms. As soon however, as National Socialism inaugurated its policy of long-term planning in food economy, of directed production control, price stabilization and the securing of uniform supplies, the need for a very detailed knowledge of agricultural production and supplies was evident. These additional statistical requirements resulted in greatly expanding the work of the Statistical Offices, as well as the statistical work carried out by the Reich Food Administration (*Reichsnaehrstand*).

Up to 1935 the Reich Central Statistical Office (*Statistisches Reichsamts*) summarized the results obtained by the various *Laender* Statistical Offices. In 1935 the *Statistisches Reichsamts* and the Statistical Office for Land Prussia were consolidated and the agricultural statistics designated as Section VII of the *Statistisches Reichsamts*. This office continued to collect and summarize the statistics pertaining to Prussia as well as to consolidate and publish the reports from all the Land Statistical Offices.

From 1927 to 1937 the *total* cultivated area and the arable land was ascertained each year. The Buergermeisters (Mayors) of the towns and the rural communities made these land use estimates according to instructions from the Statistisches Reichsamt. The buergermeisters were given the authority to determine the hectareage individually of the large farms, but this was not mandatory.

Beginning in 1938 all managers of farms of one-half hectare or more were required to complete an individual land use questionnaire. The area under cultivation in each community comprised of individual holdings of less than one-half hectare was estimated by the buergermeister. The buergermeisters appointed census takers to distribute the questionnaires and collect the results. In order to speed up results in later years the Landraete of each Kreis (County) summarized the preliminary results for a limited number of crops. The summarization for each "Land" was completed by the Land Statistical Offices and forwarded to Berlin.

The condition of the crop during the growing season and the yield per hectare have been estimated monthly by "Honorary Reporters" (Berichterstatter) since 1893. These reporters make their estimates on "crop reporting districts" composed of one or more communities rather than on individual holdings. There were about 20,000 "Honorary Reporters" in Germany for field crops prior to military occupation. The estimates were sent directly to the Land Statistical Offices, except in Land Prussia where the reports were forwarded to the Central Statistical Office after 1935. The Central Statistical Office published the condition reports and yield and production estimates for all of Germany.

Starting in 1938 the total area planted in vegetables was obtained as a part of the land use census. In recent years a later census was made in August showing the main vegetable crops. Prior to 1938 estimates of some vegetable acreages were made by the Land Statistical Offices. The growing condition and yield of some forty vegetable crops was estimated by about 15,000 honorary reporters similar to the reporters used in estimating field crops.

In the important wine producing areas of southwestern Germany the buergermeisters of the "viticulture communities" (communities above a certain minimum vine-surface) report directly to the Land Statistical Offices the vine condition and later the estimated production, monthly from June until October.

Certain of the important fruit producing Laender made fruit-tree

censuses prior to the first fruit-tree census made for the whole Reich in 1900. For instance Wuerttemberg made a census in 1852, Baden in 1865, and Hessen in 1864. Other censuses for the whole Reich were made in 1913, 1932-33, 1934 and 1938. Estimation of fruit production for the whole Reich started in 1932; however, some states began this work much earlier. Beginning in 1935 the estimates of yield per tree were made by fruit reporters for their respective communities, similar to the field crop reporters. The list of fruit reporters totalled about 12,000.

The history of the livestock census in Germany was similar to that of the land use census. The first complete census for the whole of Germany was made in 1873, followed by others at about ten year intervals. Most of the Laender had already been making livestock census at irregular intervals for about 80 years before the formation of the German Reich. Starting in December 1920 a complete livestock census became an annual undertaking. Because of the critical food situation in 1923 the census was made on the first of October rather than in December. Due to the increasing importance of hogs in German food economy an intermediate hog-census was started in June 1928. Since 1930 a hog census has been made quarterly—3 March, 3 June, 3 September and 3 December as a part of the annual census. In recent years a count of sheep, milk cows, and young cows was also included in the 3 June census. The buergermeister of each community appoints a census taker. Each holding is registered on one line of the census form and the owner required to certify as to the correctness of each entry. The results are summarized in the same manner as the land use census.

The first estimates of the average annual milk production were made in 1928 and repeated in 1931 and 1934. Beginning in July 1936 a monthly estimate of the milk production from cows and goats was made. These estimates were made in each Kreis by "estimating committees" composed of experts in the dairy and animal husbandry fields. The committees had access to the milk associations and large cattle farms records. From 1930 to 1936 the utilization of milk was estimated by the Land Statistical Offices based on reports from dairy plants. In 1936 these statistics were taken over by the Milk, Fat and Egg Marketing Associations who required monthly reports from all dairies.

Slaughter statistics have been collected by some states since the 19th century. For Germany as a whole the collection of slaughter



statistics might be said to be a byproduct of the law of 3 June 1900 requiring the inspection of the meat at all commercial slaughter houses. Monthly and yearly summaries were made of these records. In order to have additional information to use in estimating the meat supply, reports were required on the receipts of cattle at all principal cattle-marketing centers in Germany. These reports were monthly until June 1930 and since that time weekly. Since the summer of 1943 local food offices were required to send in monthly reports on the number of permits issued for home slaughter of pigs.

Stocks of grains on farms were estimated by the Reichsnaehrstand, but monthly reports on the amount of grain in mills, warehouses, and industrial plants were made by the Central Statistical Office based on questionnaires sent directly to the operators of the establishments. A special census of the grain capacity of mills and warehouses took place in 1927, 1935 and 1938.

A census of farm laborers has been made in May each year since 1941. It was made in conjunction with the land use census and processed in a similar manner.

The principal sources of check data as to accuracy of the estimates were the records of the 10 Central Agricultural Marketing Associations. These Associations covered the entire field of agricultural production, importation, and distribution. During the later years they maintained a complete check, from producer to consumer, on all food supplies.

Agricultural statistics were used in the determination of agricultural and foreign trade policy, production programs, and later the assignment of production quotas, subsidy payments, farm retentions, allocation of fertilizer, farm machinery and other farm requisites and ultimately in fixing the ration level.

*Part II: Agricultural Statistics in the U. S. Occupied  
Zone of Germany from V-E Day (8 May 1945)  
to 31 December 1945*

On V-E Day (8 May 1945), all of Western Germany now occupied by French, British, and United States Troops, plus certain areas now under Russian control, was under the Command of Supreme Headquarters Allied Expeditionary Forces. In most areas there was no recognized authority other than the Army. While orders from SHEAF did not direct the dissolution of Land (State), Kreis (County), town, and community German governments the

policy pursued in regard to de-nazification and Military control did in effect destroy or very seriously limit the authority of the civil governments. An order or directive issued by any German governmental official left in office was effective only insofar as it was supported by Military authority.

The final zone of occupation of the United States Forces includes all of Bavaria east of the Rhine except Kreis Lindau, about one-half of Wuerttemberg, forty percent of Baden, Land Hessen east of the Rhine, Regierungsbezirk Wiesbaden less four kreis, and Regierungsbezirk Kassel less two kreise now a part of Thuringia. Thus there was not a single regional German administrative area left intact, insofar as statistics is concerned. A further complicating factor was the inclusion of three kreise belonging to Czechoslovakia in the Bavarian data since 1940. Zonal lines in several instances also cut across kreis boundaries.

The first job of a victorious army has always been the supervision of the feeding of the conquered peoples, and in order to accomplish this, information as to available indigenous food and the production of agricultural commodities was imperative.

An initial report on the "Food Stocks on Hand" as of 1 June 1945 was published by SHAEF. This survey was conducted through Army channels and pertained largely to the status and amounts of captured foods. During the period of active fighting and for some time thereafter no attempt was made or could be made to obtain complete or overall agricultural statistics. Surveys to obtain "spot" information were made. Recognizing the need for more complete agricultural information Food and Agriculture officers assigned to SHAEF prepared a set of six statistical report forms asking for basic information on population, food stock position, 1944 crop production, livestock numbers, meat production, milk production and utilization, and farm requirements. These questionnaires were distributed through Military channels under letter dated 31 May 1945. Most of the reports required were monthly and on a regional basis.

Due to the constant changes in areas occupied by divisions, corps, and armies and the fact that seldom did these areas conform to the German administrative boundaries, the questionnaires did not reach most of the offices concerned with them (Regional Military Government Detachments in the U. S. Zone) until early July.

Fragments of German statistical records were gathered up by

various officers and intelligence teams but a complete series of historical data were not available. Very little data by kreis were located, which made the compilation of a series of reliable statistics especially difficult. The lack of familiarity by Military Government officers with German governmental machinery plus the confusion and emergency problems created by the complete disintegration of the civil government caused the statistical offices to be overlooked during the period immediately following V-E Day. Later when the need for current as well as historical data relative to agricultural production and utilization became more pressing, these offices were investigated by Military Government officials. Informal instructions were issued by F & A Branch of SHAEF about 1 July 1945 to reestablish the Agricultural Sections of the statistical offices and the responsibility was assigned to Regional Military Government Detachments.

The functioning of the few German statisticians remaining in the Land Statistical Offices was handicapped not only by the lack of personnel, equipment, housing, and means of communication, but was in effect halted by absence of instructions as to whether or not the offices would be permitted to operate. Not until the Zones of Occupation had been announced and go ahead orders given could the Germans do any effective work.

The Bavarian Statistical Office in Munich had been destroyed by bombing but adequate housing space was located in the city and the remaining records and equipment moved to the new location. In the early part of July the Bavarian office began to function in a limited way. However, it had no telephones or mail service and very little auto transportation. Furthermore, its authority with the German governmental agencies was sometimes questioned at lower echelons and Military Government Detachments quite often hampered the collection of data through the failure to understand the reason behind the requests. Inasmuch as the means of communication available to the Germans were completely inadequate, the use of Military courier was authorized in Bavaria for the collection of the July Crop Schedules. The function of the Bavarian Statistical Office has gradually been expanded to where it is now making all the statistical reports in agriculture made prior to occupation, plus certain work formerly done in Berlin. However, de-nazification and lack of adequate communications is still seriously limiting the efficiency of the office.

The situation in Wuerttemberg, Baden and Greater Hessen was much worse on V-E Day than in Bavaria. The Wuerttemberg office had been evacuated by the Germans in 1944 from Stuttgart to Wildbad, now in the French Zone, and the Baden office from Karlsruhe to surrounding villages. Since the French occupied Stuttgart until the middle of July no attempt could be made to reestablish this office until early August. In the meantime statistical reports were required from Kreis Military Government Detachments for Wuerttemberg. This plan was always unsatisfactory. At the time of U.S. occupation of Stuttgart and Karlsruhe on 12 July 1945 both "Land" statistical offices were inoperative. Most of the personnel, records and equipment were missing. In August a small nucleus of an office was established in the basement of a bomb destroyed building in Stuttgart. The part of the office evacuated to Wildbad supplied a few records and preliminary estimates for some 1945 crops.

The agricultural section of the office now has sufficient floor space in a good building and the most essential office equipment. It summarized the May Land Use Census and the September Livestock Census. If the staff is allowed to remain intact all of the reports on agricultural statistics formerly made can be resumed.

The situation was even more complicated in Baden where the U. S. occupied part was divided into two areas with each area reporting separately to the Wuerttemberg-Baden Land Government in Stuttgart. The old Land Statistical Office was given jurisdiction only over Middle Baden, while a new office was established for North Baden. This arrangement produced little data that could be combined with that received from other areas or compared with historical records. Early in October the civil government for all of U. S. occupied Baden was established at Karlsruhe, as a subordinate government to the Land Government at Stuttgart, and the Land Statistical Office began to cover the whole of U. S. Baden. At the present time the office is adequately housed and equipped to do the work in agricultural statistics. The limiting factors are lack of trained personnel and communications.

The situation in Greater Hessen differed from the other parts of the U. S. Occupied Zone in that formerly the office for the Regierungsbezirk Wiesbaden and Kassel was in Berlin and the office for Land Hessen at Darmstadt was inoperative. To meet the urgent demands for agricultural statistics in this new "State" a statistical

office for Greater Hessen was established in Hoechst, near Frankfurt. Personnel were recruited from part of the Reich Central Office which had been evacuated to Wuerzburg and Wildbad. Records were brought together from various sources, equipment borrowed and housing space obtained. This office can shortly provide all the agricultural data formerly supplied by comparable Land Statistical Offices.

In order to have adequate historical data on which to base current estimates and future planning the Agricultural Section of the Reich Central Statistical Office which had been evacuated to Wildbad was requested in July to prepare data on the hectareage, yield, and production on all major crops from 1939 to 1944. Data on livestock numbers and slaughterings were also supplied. This information was of much value in making the crop estimates and livestock census published to date.

The Agricultural Sections of the Land Statistical Offices are now considered to be operating in a fairly normal manner; however the personnel in each office is generally lacking in training and experience. "Honorary" crop reporters are answering questionnaires. It is estimated that Bavaria has 700 crop reporters, Baden-Wuerttemberg 300, and Greater Hessen 350 submitting monthly estimates. A land use census has been made throughout the U. S. Zone under the direction of the appropriate statistical office. A livestock census, complete in most areas, was made in September.

One of the most serious deficiencies at the present time is the lack of a German Central or Zonal Statistical Office to direct and coordinate the activities of the Laender Offices, summarize the data and publish reports. Although some supervision can and must be supplied by Military Government the day to day job can only be done satisfactorily by a competent German agency. In effect the Food and Agriculture Branch of the Office of Military Government in Frankfurt and Berlin has been acting as the Central Office for the U. S. Occupied Zone. Plans have been prepared covering the structure and scope of a Central German Agency, and the U. S. Office of Military Government is prepared to join with the other nations in establishing such an agency.

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### THE RECLAMATION OF FLOODED AREAS OF HOLLAND

THE following is mostly a brief report on the progress of the restoration to production of the land in Holland flooded by the opening of the sea wall during the second World War. The writers were given the opportunity, in connection with meetings of the FAO Advisory Committees at the Hague in August, to observe the damage done by the flooding and the progress of the restoration. Mr. G. J. Toxopeus, in charge of this reclamation work, and Mr. J. H. Nas and Mr. G. H. Ct. Keuperi, all of the Dutch Service for Agricultural Restoration, conducted the writers over the island of Walcheren and explained the operations; and the Netherlands Government arranged a tour for the two FAO committees meeting at the Hague which included the flooded polder west of the Zuider Zee.

Common newspaper reports, at the time of the breaking of the Walcheren sea wall in March and October, 1944, were to the effect that ten years would be required to bring back into production the land flooded by salt water. In fact, however, around two-thirds of this land grew a crop of barley in 1946, or perhaps is already seeded to alfalfa. The remainder of it is being drained ready to grow a crop of barley next year.

Barley is the crop which does best the first year after the salt water is drawn off. Alfalfa is the best crop to follow for two or three years afterwards, partly because of its tolerance of salt and partly because it is grown without plowing. This soil should be tilled as little as possible for the first few years. The first impulse of the farmers was to plow it deeply in order to loosen up the soil that seemed to have been packed closely by the flushing effects of the water. The administrators were given authority to prevent this, until such time as the farmers themselves discovered the wisdom of it. The surface is only very lightly worked before seeding the barley. The yields of the barley the first year may be as high as 70 percent of normal. If the land is planted to barley the following year, the yields fall off because the structure of the soil deteriorates. Sugar beets are not a good crop to grow for several years because the roots penetrate the soil too deeply. Mangel wurtzels, which grow more nearly on the surface, are being grown for cattle feed, which is very scarce in these areas.



Mr. Toxopeus explains the chemistry of the operation as follows: "The rainfall washes away the Cl-ion in the salt, leaving the Na-ion to combine with the soil to form a sodium clay, which deflocculates the soil, makes it very sticky and putty-like when wet, and almost stone-hard sheets when dried in the sun. The object the first year after the salt water is pumped off is to drain off the rainwater carrying the Cl. To prevent the formation of the sodium clay,

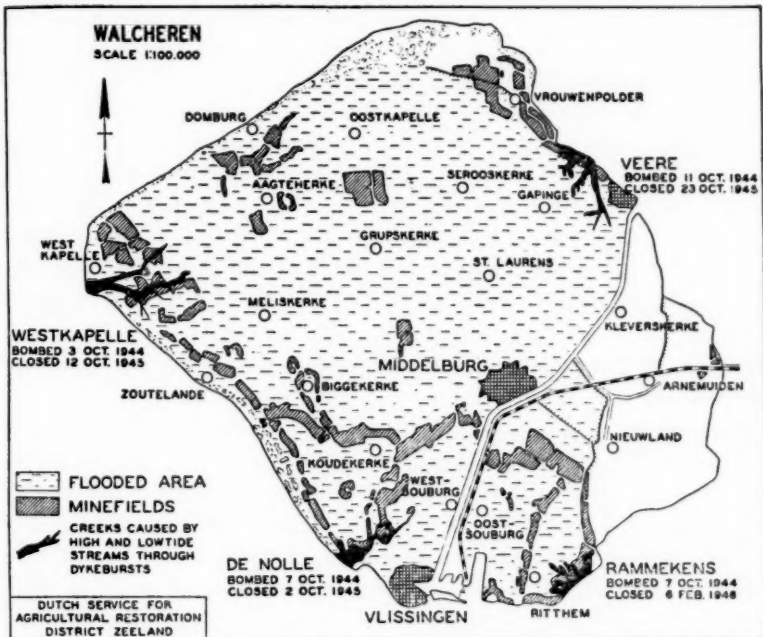


FIG. 1. THE FLOODING AND RESTORATION OF THE ISLAND OF WALCHEREN

from 1 to 3 tons of gypsum are applied per acre to the alfalfa in three doses."

Although fair yields of barley and alfalfa are being obtained, these are more extensive crops than those normally grown on the polders, with the result that the agricultural output is much reduced. In all of Holland, 9000 acres of horticultural land was flooded, and a much larger potential acreage of sugar beets and potatoes. All of the fruit trees were killed on Walcheren, and every-

where that the water covered the land. In much of Walcheren, the water was six feet deep at high tide. It poured in at each high tide at the opening in the dike at De Nolle, and out at Verre at ebb tide. (See Figure 1.) The topsoil was washed off near the inlets, and then deposited in the quieter waters. Deep gullies were cut in the land where the current was strong. Immense quantities of sand were washed in from the sea and deposited over several thousand acres of topsoil, in some places to a depth of two feet or more. The strength of the current and waves was such that 10 percent of the 1800 sets of farm buildings in Walcheren were destroyed completely, and another 15 percent were destroyed in part. The wagons and farm machinery are rusted beyond all possible use. In the part of Walcheren south and east of the canal, which was emptied of salt water only last February, and is mostly not yet in crops, the ground is covered in spots with a few inches of mussel shells, and the fence posts, buildings, and dead trees are encrusted with them.

The total area inundated in Holland was 546,500 acres, of which about half was pasture and half was arable land. This represented about a tenth of the agricultural production of Holland. A minor fraction of this was flooded at the time of the first invasion. Over 200,000 acres of the flooded area was in the province of Zeeland in southwestern Holland, Walcheren alone having 36,000 acres. (See Figure 2.) Walcheren was heavily fortified by the Germans. Huge "pillboxes" with reinforced concrete walls two and three feet thick were built at intervals inside the dikes. Most of these were knocked out by shelling from the sea before the British landing at Westkapelle. In some of the mine fields, as many as three hundred mines have been removed per acre. As appears in Figure 2, Walcheren commands the Scheldt River, and the entrance to the harbor of Antwerp, which was essential to the Allied forces as an unloading point for supplies in the critical final invasion stages. About 15,000 acres in Walcheren were seeded this year, and another 7500 will be seeded in the next year or two. Part of the remaining lands are still mined. German prisoners of war are engaged in removing the mines.

All the cattle and horses left on Walcheren were evacuated (or killed) at the time of the invasion. They are being returned slowly as feed and barns become available. There is an acute shortage of power; the Restoration Service was able to buy only 40 tractors.

The grain harvest was far from complete on August 17 because of a shortage of binders. Considerable of the grain had been bound by hand. The families losing their homes are living in the villages, which were in considerable part on higher land a little above the water line, or with other farm families. It is planned, however, to

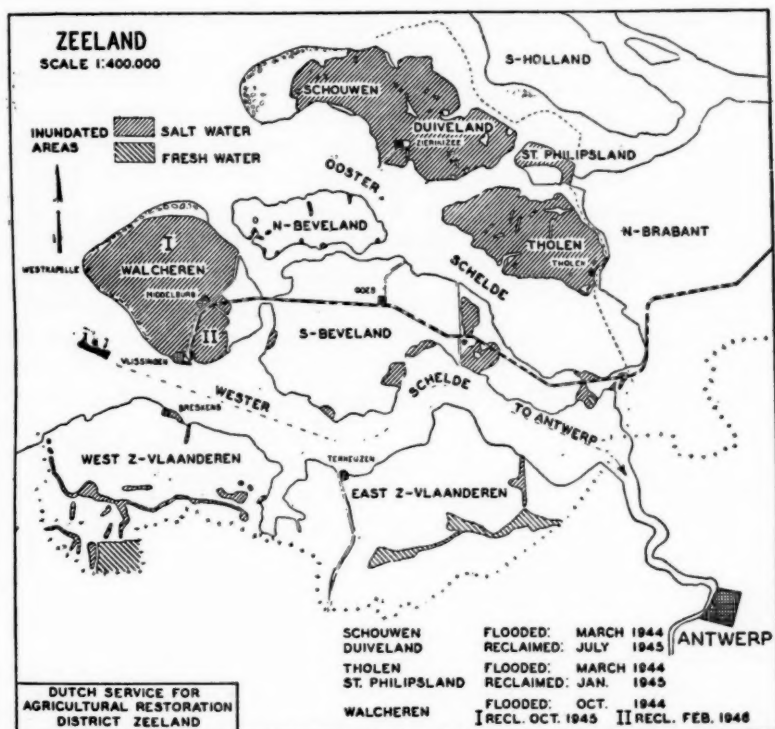


FIG. 2. A THIRD OF THE PROVINCE OF ZEELAND WAS INUNDATED, MOSTLY BY SALT WATER.

resettle a few thousand of those formerly in Zeeland on the new land being reclaimed on the Zuider Zee project, thus to enlarge the holdings of those remaining.

The enterprise and skill with which the Dutch have proceeded to restore their agriculture in these flooded areas deserves high commendation. It is true that long experience in winning land from the sea, including clearing it of its salt, had taught them how

to go about dealing with the problems facing them in 1945. But the task was greatly complicated in several ways, and of course much larger than ever faced at one time before.

### *The Wieringenmeer Polder*

The Zuider Zee is now designated on the map of the Netherlands as in two parts, the Islmeer, which is inside the big dike, and the Wadinzee, which is outside it. The water of the Islmeer is now fresh; hence the land in the Wieringenmeer polder west of Islmeer will not need to go through the process of being de-salted. However, the water was not pumped out in time to plant a fall winter wheat crop. This year's crop, which was planted with great difficulty, consists mostly of oats. Here is a tract of around 50,000 acres, made into farms about 10 years ago, in which only a few of the buildings are now habitable. The families are mostly living in villages or with farm families outside the tract. Hence, they have had to travel long distances to work their land. A few are living in makeshift shacks.

The barns on these Zuider Zee polders are built with heavy reinforced concrete sidewall pillars and roof supports, with bricks between the pillars to form the sidewalls to a height of 12 to 15 feet. The waves toppled in the brick, leaving the pillars standing and supporting the roofs. The houses, also of brick, and built onto one corner of the barn, in the manner of the Frisian farmstead, are almost completely ruined. Reconstruction will be begun shortly. The villages in this polder are also more than half demolished. Young trees planted in non-arable tracts are all dead.

The tour also traversed a new polder of around 30,000 acres on the east side of the Islmeer. The water on the outside of the dike is 5.7 meters higher than on the inside of it. One pumping station is electrically operated; the other, diesel-powered. The electric station operates only at night. These stations, operating continuously, pumped the water over the dikes in something like half a year. The cost of the drainage and buildings on this polder was something over \$400 per acre at prewar prices. This does not include the 20-mile dike shutting off the Wadinzee, which employed, as the Dutch state, a whole army and a fleet. It is an embankment probably around 100 feet high and 150 feet wide. The farming which the Dutch expect to practice on this land is a combination of wheat, sugar beets and dairying. The domestic and export market for

vegetables and fruits seems to be completely supplied by older polders. The wheat and beets are well subsidized. Perhaps 200,000 more acres of land may someday be reclaimed inside the big dike.

The settlement of this land is very carefully planned. In laying out sites for villages and cities, the black earth is removed and replaced by sand down to a depth of 6 to 8 feet. Otherwise all the buildings would need to rest on piles. The largest city is planned for 15,000 people. Permanent brick houses, built to house the reclamation force, form the beginning of these villages. The land is laid out to be operated by the government in 500-acre units, with full mechanization, for the first four years. The barns and houses on these units will be the buildings for 180-acre units later. The land is laid out in 60-acre units. The final farms will be multiples or fractions of 60 acres. Probably 60 acres will be the most common size. Water for household use has to be piped from the former mainland. The barns and attached houses are very well built and commodious, not makeshifts such as commonly built on irrigation projects in the United States.

The farms will be rented for terms of 6 years or more, mostly more. The rents on arable land are expected to run about \$20 per acre. Perhaps there are differences of opinion among the Dutch as to whether these farms should eventually be sold to their operators. Those with whom the writers talked favored continuous state ownership—to prevent subdividing later into sub-economic units. The Dutch prefer fewer farmers and keeping them well-to-do.

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## REVIEWS

*Marketing Farm Products*, Geoffrey S. Shepherd, Ames, Iowa: The Collegiate Press, Inc., 1946, Pp. x, 445. \$4.25.

Out of his wealth of experience as a teacher and researcher, Professor Shepherd has written an interesting and informative book. Written presumably as a text-book, it is not so much a systematic treatise on the subject as a collection of essays on various angles of marketing and what Shepherd finds to be wrong with present organizations and procedures. Students will find the book instructive but teachers will need to supplement it with background descriptions of actual marketing processes at certain points. Some chapters are based on the author's own work; others are a compilation of the work of others. The quality of the various chapters depends in part on the availability of materials in the various fields and in part on the selection and organization of the material.

The first 195 pages deal chiefly with price problems and includes more material on prices than is usually included in a text-book on marketing. To the farmer the marketing problem is a price problem, and this emphasis on prices is warranted. There follow 203 pages dealing with the reducing of costs of marketing for different groups of commodities and with possibilities in connection with cooperation, retail distribution, and interstate trade barriers. Actually, these headings are too narrow as he deals with various types of market improvement as well as with costs. There follow 40 pages of appendix material on various subjects and an index.

No one can summarize or appraise all the facts and judgments contained in a book of this size in a brief review, and the balance of this discussion will merely comment on points noted by the reviewer in reading the book. Based on studies showing food purchases at different levels, the author concludes that the income-quantity curve for all food has an elasticity of 0.2 and the income-expenditure curve, an elasticity of 0.4. Thus with higher incomes people buy more food and more expensive kinds but not in proportion to increases in income. Shepherd favors some plan to make more food available to people in low income groups. He says "distribution of income is responsible for this inadequate nutrition" (24).

He points out that fluctuating prices for farm products arise from unstable demands and relatively stable overall supply. "Agriculture produces close to capacity all the time" (32). He notes correctly



that government efforts to stabilize prices, even if successful, do not stabilize incomes because crops vary in size.

He points out that motor trucks, better highways, and the radio have led to the decline in importance of both strictly local and central markets, leading to a dispersion of the markets and to growth in importance of secondary interior markets. Out of this situation has grown the "direct marketing" controversy. Shepherd's solution would be to improve market information and bases for grading so that farmers can do a better job of selling under the new conditions.

He points out that the pricing problem involves not only the level of prices but of properly differentiating the prices of different lots for quality. No one can quarrel with his views for better differentiation at the points where farmers sell but some of his comments here are a bit on the idealistic and theoretical side in view of the actual problems which handlers of farm products face. Price reporting should be more localized.

He favors the "committee system" of pricing where it is practicable in order to avoid the vast amount of "higgling and bargaining" in the marketing process. This may readily lead to the government taking a major role in the process. One gathers that Shepherd would not object too much to this.

He would like to reduce cycles in livestock production, and, as is well known, believes that storage programs for feed grain would contribute to this end. This reviewer is frankly skeptical on this point. The wildest fluctuation we have ever had in hog numbers came in the 1942-1944 period. A big factor in inducing this over expansion and subsequent rapid contraction of hog numbers was the huge stock of corn accumulated in a storage program and consequent retarded advance in grain prices. In general students will find his analysis of cycles and seasonals valuable.

On hedging he says, "it does not go to the heart of the trouble (unstable prices) and correct it" (114). While it provides the means to shift risks, it does not prevent fluctuations. His view that dealers and processors benefit from hedging and farmers do not does not seem tenable. Hedging does not prevent fluctuations in price and the speculation which makes hedging possible may even increase short-time instability, but if hedging permits dealers to shift risks, a part of their costs, it seems reasonable to believe that dealers and processors operate on lower margins and if so, producers benefit.

He concludes that future markets follow the cash market and do not stabilize prices. Shepherd's preference apparently is indicated by these comments: "The stabilization operations of the Commodity Credit Corporation are designed to reduce or eliminate the fluctuations." "It seems likely that this decline (in futures trading) will continue" (133). This, of course, joins the issue as to whether we want "free markets" with price fluctuations or "controlled markets" with fewer fluctuations. Shepherd expects and apparently desires the latter. On this point many including this reviewer will disagree. Controlled markets mean too many undesirable things along with possibly reducing price fluctuations.

On one point in this chapter Shepherd is guilty of what, to say the least, is bad taste. Several parties have been charged with violations of the Commodity Exchange Act in connection with operations in the rye futures market. These charges were still pending before a Hearings' Officer of the Department of Agriculture when this book was published; in fact they are still pending (August 1946). It is American practice to assume that people are innocent until proven guilty. Yet Shepherd says: "(this group) *cornered* the May rye futures on the Chicago Board of Trade in 1944" and "this group is now under indictment by the USDA" (126). A corner is a serious charge under the Commodity Exchange Act. Shepherd declares them guilty of this charge before official determination of this charge is proven as provided by the regulations. He also has them indicted, a legal term for Grand Jury action in criminal cases, not appropriate to the charges made against these parties. To use such language in a college text-book certainly opens the door to suspicion as to the author's carefulness in selection and use of materials.

Regarding milk marketing Shepherd takes monopoly for granted. As a matter of fact, the situation regarding sale of milk by farmers was so competitive that in many of the larger markets the farmers demanded that the Federal government come in and establish the basis for prices. Anyone who knows anything about conditions in a large milkshed like that of New York City knows that competition for milk between plants and firms has been bitter. In New York City a recent survey has shown that while the big companies handle most retail sales, there are hundreds of one-route dealers. How competition can be avoided under these conditions is difficult to see. The material regarding use of "closed bases" seems to be out

of date. If this reviewer's information is correct, this practice was abandoned several years ago in the Chicago market under the terms of a Consent Decree which proscribed various monopolistic practices.

In discussing marketing costs he makes distance of consumer from producer a primary factor in the high percentage of consumer price absorbed in the marketing process. Rather it results from any high combination of high costs in relation to cost of raw products. At the top of the scale in his list of commodities with high marketing costs (199) are whole-wheat bread, corn flakes, soda crackers, rye bread. Not distance but other costs are the prime factor in these cases. He states that total profits from producer to consumer are about three cents of the consumer's dollar (212). This does not seem to check with data on the previous page which shows for 1928, profits of 3.1 percent of sales for grocery chains and 2.1 percent for meat packers. These two items alone would add up to more than three percent of the consumers' dollar.

The principal problem in Shepherd's opinion in reducing grain marketing costs is apparently a revision of warehouse laws and practices. Is this our most important grain marketing problem? In Illinois, a principal grain marketing state, when more storage space was needed to store the soybean crop, the country elevators and mills went ahead and built it. This state does not have much of a grain warehouse law or adequate enforcement, but the needed storage was provided for our soybean crop, greatly expanded in wartime.

In discussing packer practices in buying livestock, he adopts the common sense attitude that they act like businessmen and quotes a packer economist to prove the point. The well-known Iowa studies showing that too many creameries are in that state are presented and he concludes "it's up to farmers and creamery operators whether they permit nature to take its painful and long-drawn course (of eliminating surplus creameries) or whether they deliberately reorganize their butterfat marketing system through a carefully planned program" (273). There is a good summary of current ideas about reducing costs of milk distribution. The views of those who favor public utility regulation for milk and those who favor competition are cited. Any way it's handled, it's going to be an expensive proposition to use high-cost labor to deliver small consumer units to retailers' doorsteps. A lot of service is involved.

Chapters on cotton, fruits, and vegetables and trade barriers contain much interesting information and comment. These draw heavily on U.S.D.A. studies; a lot of good work has been done in these fields. There is a good summary chapter on cooperation. Some valuable information on marketing margins is in the chapter on retail costs, as well as a good discussion of the chain-stores, super-markets, voluntary chains, vertical integration and the problem of monopoly in food retailing. "The charges against (the mass retailers) are not that their selling prices are too high but that they are too low" (395).

High costs in marketing arise from competitive duplication. We had a grocery store for each 358 people in 1935 compared to 486 in 1900. This situation runs through the entire marketing system. How can we prevent competition bringing in too many units? This is a good question but Shepherd does not answer it. He says, "(to limit number of facilities) would obviously involve some fundamental changes in our present conception of free enterprise and competition" (396). He does not say we should do this.

Thus Shepherd finds two basic problems in the marketing of farm products: (1) *price instability* and (2) *general inefficiency* caused by competitive duplication. Unassisted by the government the market cannot stabilize prices. When the government intervenes, it has found that it confronts serious difficulties. Reduction in the inefficiency caused by duplication of firms and facilities would involve government limitations on free enterprise and competition. Both of these problems will likely be with us for a long time, but we should steadily make improvements here and there within the general framework of a free market and of freedom for capital and individuals to enter into different lines of business. Likely many of the improvements that we will make are embodied in the various suggestions which Professor Shepherd has assembled in this much-needed book.

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*California Agriculture*. Edited by Claude B. Hutchison. University of California Press, 1946. Pp. viii, 444.

This is a difficult book to review because there is so much in it. It is both a compendium of facts and a story of the rise and growth of an agricultural empire. As Dean Hutchison points out in the

Preface, there are 118 distinct types of farming areas in California against only 25 in Pennsylvania with the next largest number, or 20 in Texas and only 7 in Minnesota. "In no other area of comparable size in the world is so wide a range of these ecological factors to be found, combined with such extensive and ingenious man-made devices for their use" (p. vi). Moreover, it is frequently not clear for whom the book is written. The blurb on the cover says it is "for anyone, anywhere, who wants the comprehensive view." Writing to that wide an audience always is a difficult task and in this case it is accompanied by a curious mixture of generalization and technical detail. But at least to one who has known California agriculture with some intimacy for forty years it is a fascinating book.

There are six sections in the book, each written by a different author. The historical background, from the arrival in San Diego in May 1769 of the first cattle herd to the completion of the Pacific Railroad in May 1869, is covered in the first section by Frank Adams. Then follows a section on livestock by George Hart and collaborators and one on crops by Warren Tufts and collaborators. These are followed in turn by the more specialized and technical subjects of pests and diseases ably handled by Ralph Smith and others, and the soil-fertilizer-irrigation problems presented by Hans Jenny and others. The final section deals with the economic and social structure of California agriculture and is written by M. R. Benedict.

The first California constitution provided that "The legislature shall encourage, by all suitable means, the promotion of intellectual, scientific, moral and agricultural improvement." Thus agriculture has been a matter of public concern from the beginning of statehood. The College of Agriculture was established by the Act of 1868, and the present book is, in considerable part, a history of the scientific accomplishments of the college and its affiliated units. These are so impressive that their recital should be an important aid in persuading the legislature to continue its support of agricultural research.

It is interesting to note how long ago some of the outstanding features of California agriculture started to develop. For example, the state is justly famous for its Cooperative organizations. These had their beginnings many years ago. The California Wool Growers' Association was organized in 1860 and the California Wine

Growers' Association in 1862. Among the purposes for the latter organization was "to discover and expose all attempts at adulteration of California wines and brandies." Thus recognition of the necessity for quality products is of long standing. This recognition was based, at least in part, upon the early realization that California needed to "export" agricultural products. In 1869 the president of the Northern District Agricultural Society said, "We produce more than all our miners and all our inhabitants can consume, and we must look to a foreign market." Much of the income of Californians has come from that "foreign market" ever since. Or to cite another case, as early as 1866 the legislature authorized a survey for an irrigation canal from the Sacramento river through Colusa, Yolo and Solano counties. In 1874 a state board sent to President Grant a comprehensive plan for water development in the entire central valley in many respects similar to those now in the process of being carried out, with the important difference that no provision was made in the early plans for divergence of water from the Sacramento to the San Joaquin portion of the valley.

Many problems are peculiar to, if not actually unique in, California agriculture. For example, the annual forage crops result in greater intra seasonal variations as well as differences between years than occur in the areas of perennial grasses. Special problems are constantly arising also, from the highly specialized nature of the poultry, dairy, and fruit industries as they have been developed in California. Labor problems are both more common and more serious in connection with these types of farming than is general in agriculture. The long-distance shipment of perishable fruits and vegetables has led to, and been the result of, developments in transportation, refrigeration, and pre-cooling that are distinctly Californian.

Among the interesting peculiarities, great importance may be attached to the relatively short life of many of the fruit producing areas usually thought of as a "permanent" form of agriculture. Shifts of major importance have occurred since 1900, for example, in the decline of deciduous fruit production in Los Angeles and San Bernardino counties, in the movement of the walnut areas from the southern to the northern part of the state, and in the rapid rise and even more rapid decline of apple growing in the Yucaipa valley, to mention but a few. These shifts are due in some cases to the ravages of pests or disease, in others to final realization of lack of



adaptation, and in others to "opportunity costs" or the competition of other land uses. The latter is illustrated both by the higher income realized from citrus than from deciduous fruits or walnuts in some cases and by the encroachment of urban uses as in the area immediately surrounding Los Angeles.

Many accomplishments are credited, at least in part, to the agricultural experiment stations. For example, the University's program of dairy-herd improvement is said to have resulted in an increase in milk fat produced per cow from 182 pounds in 1920 to 265 pounds in 1930. Somewhat similar improvement is reported for most of the livestock industries. Breeding has been important, also, in connection with some of the annual crops such as wheat, barley, and cotton. Results here do not appear to be so striking, however, as those associated with the development of hybrid corn, for example, in the middle west. In the case of fruit crops the contribution of research to the improvement of varieties seems even less important. French prunes introduced in 1856, Muscat grapes in 1873 and Missions much earlier, navel and valencia oranges, eureka and placencia walnuts, and royal apricots are still leading varieties. It is interesting to note in these cases that one or two early varieties out of several hundred that were commercially tried have come to dominate the industry. In the case of peaches for canning there are several prominent varieties all of which originated in the state after 1900, but the University appears to have had little to do with their introduction.

Perhaps the greatest contribution of research to commercial agriculture in California have been in the fields of pest and disease control. Such maladies as walnut blight, gummosis of citrus, phylloxera of the grape have yielded in whole or in part to treatment recommended by the experiment station. The complete control of the cottony cushion scale and the citrus mealy bug by parasites is a romantic chapter in economic entomology. Discovery of the cause of gummosis of citrus and, later, the cause of scaly bark illustrate scientific procedure of a high order. This section of the book describes research studies that have resulted in millions of dollars of income to farmers of the state. It is to be criticized, perhaps, as a matter of perspective, in its lack of emphasis on the reduction of decay in transit which was accomplished between 1900 and 1920. For this work the Federal Department of Agriculture deserves much credit.

The work with soils, plant feeding, and irrigation has also been of great importance. Shortly after Professor Hilgard came to the University in 1874 he commenced a study of the alkali problems under conditions of semiarid, irrigated agriculture. This work has continued to the present. Much has been learned, but the experts are not yet ready to say that a method of permanent agriculture under California conditions has been worked out. Recommendations are now available, as a result of long-continued observations and experiments, on the proper and profitable use of fertilizers for various crops in different parts of the state.

Irrigation problems have received much attention for many years. Water penetration and subsequent loss from the soil is much better understood than it was a generation ago. The old idea of frequent tillage for the purpose of conserving moisture appears to have been exploded, since water does not rise through soil as the result of surface evaporation and capillary action, except from a free water table. Even though this principle was accepted by students by about 1915, controversy still exists among orchardists and others concerning the merits of tillage. It takes a long time for research workers to see all the implications of their work and, perhaps, even a longer time for commercial farmers to take advantage of technical knowledge. On this particular point of tillage the research men themselves, at least in this book, fail to present a clear-cut, definitive decision on the issue, so it is not surprising that farmers do not agree.

In the discussion of irrigation it is pointed out that there are about one hundred million acres of land in California. Of this, about three and a half million acres are classified as irrigated crop land. There is no discussion of how much more could be irrigated if water were available. The present plan for the central valley presumes a better distribution of water relative to available land by diversion of some flow from the Sacramento to the San Joaquin, but the question as to how much land in the state can ultimately be irrigated when the entire water supply is utilized is not discussed. This seems an important omission, since it was pointed out many years ago that the entire precipitation, if all conserved, would be inadequate to irrigate anything like the entire crop-land area in the state. How much additional irrigated agriculture California can support is an important matter not only to Californians, but to the world food supply as well.

There are many interesting things about the economic and social structure of California agriculture. Perhaps no where else in the world, for example, is there any community that corresponds to the citrus belt of southern California. In this industry the labor cost is unusually low relative to the return to capital. Moreover, a considerable part of the labor is performed by gangs of workmen hired and managed by the cooperative associations. Partly as a result of these conditions, the social status, background training and financial stability of the proprietors is on a different level from that in most farming areas.

California has gone through periods of very large land holding. The huge cattle and sheep ranches, the bonanza wheat farms, were typical in the early days. Some large holdings have continued, but the state is much more nearly typical now than at some times in the past. One of the important social problems discussed in the last section of the book is whether or not an era of large, corporate farming is returning. While there are currents and counter currents, the author concludes that "there appears to be no conclusive evidence that the many large farms under intensive cultivation are becoming more numerous or larger at the expense of smaller ones."

Doubtless California agriculture will face many problems in the future as it has in the past. In the closing pages of the book a few of these are mentioned. In general, no solution is given; in fact, the statement is made that "this summary is not for the purpose of proposing solutions, but rather that of stating problems."

In the opinion of the present reviewer the book would have been strengthened by the addition of biographical notes on the authors, by a more complete index including a liberal listing of names of those persons whose work is referred to, and by closer integration of the several sections. Moreover, in some cases the present accepted opinion of the experts might have been more definitely stated even though not final. And there are some cases where more careful editing would have served to clarify meaning. Perhaps, however, even these mild criticisms are ungracious when directed towards so fine a general survey of an epic.

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ROLAND S. VAILE

*Changes in Income Distribution during the Great Depression.* Horst Mendershausen. New York: National Bureau of Economic Research. 1946. Pp. xviii, 173. \$2.50.

In contrast with other volumes in the Income and Wealth Conference series, this study is distinctly in the monograph style. The author rigidly limits himself to his subject—observed changes in the size distribution of family incomes associated with cyclical swings between prosperity and depression. Since relevant data are rare indeed, the study is confined in the main to income size distributions for 1929 and 1933 as reported in the *Financial Survey of Urban Housing*. The volume might, in fact, be considered a specialized report on these data although for corroboration of certain findings incidental use is made of various income size data for Delaware, Wisconsin, the United States, and Germany.

The initial chapter supplies a brief review of changes in average family income from 1929 to 1933 for the 33 cities sampled in the urban housing survey. Apparently, for cities with higher mean incomes in 1929, there was a lesser relative drop in average income than for other cities. Also, mean incomes of owner-occupant families, though above those of tenant families in both years, tended to fall comparatively farther between 1929 and 1933.

The second chapter deals with the first major problem, that of cyclical changes in inequality in the distribution of income. For measuring inequality, the author chooses to employ the standard deviation and the mean difference as indicators of "absolute" inequality and their counterparts—the coefficient of variation and the coefficient of concentration—as measures of relative inequality. These measures apply to entire income distributions. Consequently in dealing with segments of the distributions, they are supplemented by use of related measures pertaining to components of the distributions and also by reference to Lorenz curves.

Findings provide various factual details that help to replace sheer conjecture. Inequality in the sense of relative dispersion definitely increased from 1929 to 1933 despite the general drop in absolute dispersion. Also, inequality increased more for tenant than for owner-occupant families. The shift from prosperity to depression induced a reduction in the income share going to the lower income classes as a group, especially the share going to the lowest classes. The higher group, i.e., the upper 30 to 50 percent of the families, gained correspondingly although the share of the top most income classes generally declined.

A number of contributing factors are suggested in explanation of these changes. Unemployment during depression is presumably

more severe among lower-paid employees than others and the earnings of these persons if still employed are more flexible than other wage earnings. For the upper classes, mention is made of the comparative stability of salary and higher wage incomes and of the severe drops in some types of property income that typically account for a major share of income in the top brackets.

A final chapter reviews changes in the positions of individual families in income distributions from one period to another. These are illustrated by shifting of families from one to the other side of a given dividing point, such as the median, or by the correlation between incomes in different periods. Positional change is also evidenced by the scattering throughout the income range of families that are in some given income class in the base year. Study of these shifts is based on income distributions of identical families in pairs of years whereas, in other phases of the analysis, findings rely upon identical family samples as well as the broader usable samples that also include families reporting in but one of the two years.

Findings indicate that roughly one-eighth of the *Financial Survey* families moved from below the 1929 median to above the 1933 median, with a similar fraction dropping below, and that the coefficients of correlation ranged from under .6 to nearly .9 for the 33 cities. Families in the moderately low and the highest income classes in 1929 suffered relatively greater declines than families in the moderately high and very low 1929 income classes. Judged by movements from scattered 1929 positions to given 1933 classes, it was the moderately low income classes that gained relative to other groups, particularly the lowest and the moderately high 1933 classes.

The merit of this book lies in its single-mindedness, so that in dealing with complex materials, it is brief, specific, and conclusive. The fact that the investigation was carried on under the general auspices of the National Bureau of Economic Research assures a very considerable degree of competence and technical adequacy. By way of criticism, this reviewer would question the limited scope of the investigation. Several relevant questions could have been probed. It is too simple, and certainly not very penetrating, to assume that inequality can suitably be measured in terms of some one or another of various dispersion coefficients. Also, it would have been worth while to probe further into the several components of family income to see how each contributes to the changes under

consideration. Finally, interpretations and conclusions should have been much more fully tested by further reference to additional source materials.

DWIGHT B. YNTEMA

*The Farmer's Last Frontier, Agriculture 1860-1897*, Fred A. Shannon. Vol. V. Economic History of the United States. Farrar and Rinehart, Inc., New York, Toronto. Pp. xii, 434.

Chapter I is a good and interesting chapter. The first statement of the book is that "The American farmer has rarely been prosperous. . . ." We are told that everything except mortgages was deflated after wars. It is not mentioned that even mortgages were much deflated after the first world war. This may not have been necessary since what was left was more than could be comfortably carried. But, in general terms, farmers did not stick to any one principle sufficiently to bring things, in their own favor, to pass.

Mr. Shannon, the author, reminds us that the Soils people at Washington describe 1750 soil types for the United States, and that an understanding of all these might have helped the pioneers. Maybe so, but if it had helped them to produce crops 25 per cent heavier during the period covered by the book, the gain to the growers would have been small in view of the increase of more than 25 percent in our exports.

The author gives us a pretty good description of the soil groups of the country, but the majority of his readers will not be able to follow minutely and really absorb the understanding of the Podzoli and Chernozem descriptions, yet the book will undoubtedly have many readers other than special soils students. In spite of the 1750 types of soil, challenging the farmer to understand them, the pioneers moved west and produced greater crops of wheat per acre than they had ever produced in the East. Illinois, Indiana, Ohio, Michigan and Minnesota, while yet new states produced nearly half the wheat of the country. It was not until we struck the regions of light rainfall that a need for a better knowledge of handling the soil was necessary.

Chapter II gives a very good sketch of the settlement of the country from 1860 to the close of the century.

We next come to the chapter on Disposing of the Public Domain. Here we find a discussion of the difficulties of the poor people of the cities, and fewer from farms, such as tenants, getting themselves



moved to the homestead locations. The author seems to have a pretty full understanding of the difficulties involved in getting poor people from a thousand miles east out to the homestead land, and what would have been required in the way of aid in getting them set up as farmers. He appears to feel that such help should in some way have been available. Real wisdom would have been required in carrying out a plan of this kind.

The loot of land by big companies, such as the cattle men who wanted a claim to water for a herd of cattle, and the railroads who sought claim to the timber land, is well handled, except that not so much can be said against the transparent fraud of getting title to the watering places for stock on the plains. Probably such fraud as this was almost made necessary by a government which apparently tried to make a quarter-section homestead desirable to a man who wanted to farm it in a district with a ten-inch rainfall. Not much can be said in excuses for the railroads grabbing up the timber lands upon, or near, their right-of-way.

The author appears quite sympathetic toward the poor people and apparently favored some means of getting them out onto the new farms. It would appear that we have always had too many rather than too few farmers. There seems to be very little to be said in support of more farmers who can just make a living on land.

A dreary picture of cotton growing is given in Chapter V. The claim is made that other crops than cotton were grown in relatively smaller amounts than before the war, and that little attention was given the quality of the cotton grown and shipped.

In Chapter VI the author undertakes to show why the North outgrew the South. A more wisely conceived homestead act might have taken more people in the South "thus forcing diversification and greater prosperity on the South." Just how this would have brought more lasting prosperity is not so clear.

The case concerning the great lack of men in eastern cities and on western farms during the Civil War is not much substantiated and may easily be overdrawn. The western farmers got along largely by getting horses in place of oxen; by help from wives and daughters; by buying every farm implement, or by renting and borrowing them. One trouble with the South after the war was their inability to provide themselves with sufficient farm machinery.

There appear to be a few slips regarding the development of soil-working implements. For example there was hardly, as stated, a grain binder before 1860 (p. 128) or a breaking of the soil with a "wooden plow." Does he mean that plows had more than "one share" rather than more than "one bottom"? What is more one does not often catch a plow on "rocks." In some mountain districts it might be possible.

In discussing "The Expansion of Prairie Agriculture" in Chapter VI, some rather strong statements are made. "The best farming lands were monopolized" was by no means a hundred percent true. No very great rise came in tenancy just following the break-up of these big farms. It came later.

Picture opposite page 161: Speaking of the big breaking plows, he says: "which barely cut beneath the sod." Breaking plows never cut beneath the sod in ordinary prairie soil.

Does corn have to have its growth checked by cooler weather in order to develop good ears? (page 164).

It is said (page 176) that "Producers of surplus crops, the prices of which are fixed by world market conditions, cannot pass freight costs on to the consumers." But they can so long as the freight costs are not higher than the price at which the grain will sell.

Just how anyone can believe that the farmers are "the creators of the wealth" is not easily understood. Wealth is made up of a multitude of goods, and many of them consist of houses, and tools, and other products of the mechanics. Merely what we eat and wear do not constitute or create all wealth. We have many wants other than for food and clothing, and the great majority of Americans worry about good houses, schools, and the multitude of things which make up a living other than merely enough to eat and wear. The last paragraph, although quoted from a very eloquent gentleman, will never be of help to cooperators.

The last chapter, before the one discussing the literature of the subject, Chapter XV, is, in general, an excellent chapter.

It is stated in the first part of this chapter that by 1850 the rising industrial structure was beginning to challenge the supremacy of agriculture, and before 1900, the farmer had taken a secondary position in the nation's economy. Yes, he had done so as early as the middle of that period. The rise of city markets and the ability of urban industries should have added to the comfort and well-being of farm families. They did to a great extent over part of the country but not in all, and not uniformly.

Farmers always, that is for many years, diminished relatively, dropping from 59.7 percent in 1860 to 36.8 percent in 1900. The excess population went mainly into manufacturing and trade. The number of "rural" people in 1900 was given by the Census as 60 percent of all, but by 1920, with a more careful count, the "rural" were 48.6 percent, and the farmers 29.9.

The farmers in 1860 had 39.9 percent of the wealth; in 1900 they had 16.1 percent. In numbers of population the farmers lacked 18,000,000 of keeping up with city population.

The western settlers went to the towns and cities more than to farms. By 1900 farmers were less attracted to cities. What trend population will take from now on is not clear.

The author quotes authority to the effect that a farmer during the latter part of the 19th century was likely to fail. This view hardly agrees with many criticisms concerning the desirability of getting poor people onto the prairie, and western, land.

This last chapter is an excellent one. It is to be hoped that the period from 1900 to 1945 will be handled as well. This book is distinctly good in spite of many minor faults.

BENJAMAN H. HIBBARD

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*Frontier Landlords and Pioneer Tenants*, Paul Wallace Gates, Ithaca, New York: Cornell University Press, 1945. Pp. 64.

This is a very interesting little booklet. I particularly enjoyed reading it because of the interest I have had in the development of large holdings in Illinois. It is somewhat disappointing in that it does not contain sufficient detailed information regarding each of the properties discussed to give the reader the whole story. It contains such broad historical statements as, "Then, when their improvements such as a one-room log house, a little fencing, and a few acres of cultivated land represented sufficient labor and investment to put them in a receptive mood, Riggs demanded a cash rent in excess of the taxes. Thus was tenancy born on the frontier."

Although considerably more study is needed to determine the factors that were responsible for tenancy, one gets an understanding of how these early pioneer landlords helped to shape the economic and social patterns we have today. Mr. Gates helps one gain an insight into existing customs and traditions with regard to the renting of land.

Such early pioneer settlers as Sullivant, Funk, Alexander, Scott, Allerton, Sibley, and Scully and such land speculators as Sturges and Grigg all had a part in the establishment of landlordism and tenancy in Illinois, parts of Missouri, Kansas, and Nebraska. One often wonders whether it was necessary to settle land in such large blocks. Was the land speculator really a factor in promoting land settlement? One needs considerably more information than supplied in this booklet to answer these and similar questions.

Settlers such as the Funk's, Scott's, Sibley's, and Allerton's with their large holdings could accomplish considerably more within a shorter period of time than could poorer settlers. It is significant, however, that the Scully tenants actually brought 38,000 acres of land under cultivation with their own capital. The only investment they did not have was the \$200 required to buy the quarter section of land from the government. This makes one question whether small owner-operated farms would have come into existence in the prairie had not the government encouraged land speculators and purchasers of large tracts even though they were absentee owners. Certainly the early government policy encouraged such ownership.

It is implied in the discussion that the managerial ability of the early landlords determined either their success or failure. One would like to have more economic and social information so as to examine these implications in greater detail. Human relations are always important, and the ability of people to get along certainly is evident in the study of these tracts today. There are some who are doing an excellent job, while others are really a detriment to the communities in which they live.

Social changes are dynamic and evolving, yet they always are influenced by earlier developments. Studies of this kind add to an understanding of the forces involved in bringing about changes. This little booklet, *Frontier Landlords and Pioneer Tenants*, fills a real need, and students in the field of agricultural economics should look forward to additional work. In fact, if each of the tracts mentioned could be given more detailed study, undoubtedly much would be revealed that could be of importance to a better understanding of the landlord-tenant problems existing today.

JOSEPH ACKERMAN

*Farm Foundation*

*Landlords and Farmers in the Hudson Mohawk Region, 1790-1850*,  
David Maldwyn Ellis, Ithaca: Cornell University Press, 1946.  
Pp. 334.

This volume is a worthy addition to the growing number of publications relating to agricultural history. Among the tasks set for himself by the author is describing the process of settlement and the characteristics of pioneer agriculture; to trace the shift from grain farming to sheep raising and dairying; and to outline the land pattern and the effect of the leasehold upon the agricultural development of eastern New York. Twenty-six counties comprise the geographic territory covered. Beginning with the period when the territory west of the Hudson was "the West" to the New England farmer, the book ends with the Civil War period when the Hudson Valley territory was in "the East" and "the West" lay farther west.

The agriculture of the period is discussed under three headings. First, the period from 1790 to 1808 which is called "The Good Years." Clearing away the forest and the establishing of pioneer farms was the characteristic of the period. The second period, called "Years of Uncertainty," extended from 1808 to 1825. These were years of low prices for wheat; soil depletion, the fly, the rust, and the midge greatly reduced the yield of wheat. The competition of the west was beginning to be felt. Farmers began to turn to grazing, sheep raising, and dairying. The third period is designated "The Rise of the Dairy State 1825-1850." This was an era of rapid change. The contribution of canals, railroads, and plank roads speeded up the tempo of change. The Eastern farmer was now fully exposed to the competition of cheap western products. On the other hand, home markets were developing. Hops, silk, flax, and broom corn were all tried, but the great shift was to sheep and to cheese and butter making. Orange County butter attained a world-wide reputation. But this period of rapid change was also one of unrest. Many could not make the transition from a pioneer society to a more mature economy. During the 1830's emigration attracted many. During the 1840's antirentism became the channel through which much unrest expressed itself.

Approximately one half the volume is devoted to a discussion of the land pattern and the antirent movement. Much of the land of the area was held by the landed aristocracy. By one means or another, many farmers acquired full title to their land, but as late as

1848 Governor Young estimated that 1,800,000 acres were still under lease. Rensselaerswyck Manor alone boasted of 3063 farms covering over 436,000 acres.

The leases under which the tenants held land were by no means uniform. Most leases were in effect freehold estates which were subject to a yearly rent and other limitations. Tenants of the Van Rensselaer estate had to pay him perpetual rent of between 10 and 14 bushels of wheat per 100 acres, four fat fowl, and a day's work with a team. On the other hand the tenants on Livingston Manor generally held their freehold for two lives. Upon the death of the second person named as lessee, the farm reverted to the Livingston family. Landed proprietors frequently retained additional rights to the land. Most leases provided for fines on alienation, that is, the seller had to pay to the landlord one-third, one-fourth, or one-tenth of the sale price when he sold out his interest in the farm.

The institution of leasehold tenure died hard. For over two hundred years sporadic revolts against the landlords punctuated the history of eastern New York. Despite their defeat in the 1760's and 1790's, and in 1812 and 1813, the tenant farmers refused to give up hope that eventually they would free themselves from the rent. The death of Stephen Van Rensselaer in 1839 gave the signal for a renewal of the struggle between landlord and tenant. "Armed with the weapon of the ballot, inspired with the crusading fervor so characteristic of contemporary reform movements, and skillfully employing many of the techniques of modern pressure groups, the leaseholders outgeneraled their foes in political campaigns and forced most of them to surrender their interests at a sacrifice." By 1860 the tenant farmer in the Hudson-Mohawk region had largely succeeded in breaking up the leasehold.

By dramatizing the evils of land monopoly and by identifying their cause with the demand for more democracy, the antirenter helped to arouse the nation to the importance of land reform.

Generous footnotes and sixteen pages of bibliography add to the contribution of the volume.

J. I. FALCONER

*Ohio State University*

*Labor Unionism in American Agriculture.* Bulletin No. 836, Bureau of Labor Statistics, United States Government Printing Office, Washington: 1945. (The report was prepared by Stuart Jamieson.)



This report will be intensely useful both to students of agriculture and industrial relations. The agriculturists will be interested in the background to a set of problems which may be expected to become more significant and pressing as mechanization and large scale farming expand. To students of industrial labor, the contrast in setting to the usual context of industry will sharpen and illuminate problems of employee-employer relations.

The Bulletin brings together a great deal of material on the history and extent of labor organization in American agriculture. It has been a useful task to summarize within the confines of two covers material which, up to this time, has been widely scattered and elusive. The extensive bibliography makes the report a handy reference. Much of the data have been drawn from the investigations and reports of the LaFollette and Tolan Committees. The report carries the story of labor organization in agriculture up to about 1940.

The story of the development of labor organization in agriculture requires special emphasis on the California scene. Jamieson reports that in the period 1930-39, 140 out of 275 strikes involving 127,000 out of 178,000 workers took place in California. The Report properly discusses in detail the development of labor organization in California from the days of the I.W.W. and the Wheatland Riot through the story of the activity of the Communist Party's T.U.U.L. and the more recent rival drives of the A.F.L. and the C.I.O. after 1935.

The Report then surveys briefly the story of labor organization in other sections of the country: Pacific Northwest, Arizona, the Southwest, Florida, New Jersey, New England, the Great Lakes Region, the Wheat Belt and the special stories in the sugar beet industry, the southern share croppers and tenants, and the sheep shearers of the Mountain States.

Jamieson concludes that labor disputes have been most prevalent in "... crop areas where farming was specialized, intensive, and large-scale, and where growers depended upon large supplies of seasonal and often nonresident labor for short periods of harvesting. Labor unionism had the greatest appeal in farm industries in which grower-employers were themselves well organized to control the prices of labor and produce, and in which the labor supply was more than ordinarily homogeneous in racial composition and occupational skills" (p. 38).

The Report does not attempt to present in systematic fashion any comprehensive explanation of the characteristics of labor organizations in agriculture. Many fruitful leads are suggested. For instance, it is instructive to distinguish between the sporadic revolt to redress grievances and the process of building a permanent organization. An analysis of sporadic outbursts could well be built upon the analysis of thirty years ago begun by Carleton Parker. The growth of continuing organizations requires conditions specified in studies of industrial labor organizations.

There is need to develop in even more systematic fashion the way in which the characteristics of (a) the technology, (b) the scale of operations, and (c) the market structures of agriculture influence the labor supply and labor organizations. The labor requirements in various types of agriculture are quite different: the labor supply may be migratory or fixed, variable in composition from season to season or permanent, skilled or unskilled, required in regular working hours or highly variable and seasonal working schedules. The agricultural processes also determine whether the labor requirements are confined to harvesting or are distributed throughout the year in other operations. The competitive character of the product markets decisively affect pressures in the labor market. The perishable character of the crop is also certain to affect bargaining powers in the labor market. It should be possible to develop in this fashion a systematic body of propositions to explain the character of labor organization in different sections of American agriculture, from the "hired hand" at one extreme through field workers and packing shed employees to the highly organized sheep shearers on the other.

This type of analysis proposed is of help in throwing light upon the problems which lie ahead. The continued changes in the technology of American agriculture with the consequent changes in scale of operations and the varying competitive conditions in the product markets with the influence on price of public policy are likely to result in considerably greater organization on the part of farm labor. Among the most certain problems ahead are those that revolve around the attempt to restrict further the application of the Wagner Act. At the same time concerted movement by labor organizations will be made to extend the Wagner Act, the Fair Labor Standards Act, and the Social Security Act to more and more "agricultural labor." Some reference might have been directed in the present study toward developing the relations of labor

unionism in agriculture to political activity and to the political programs of farmer-labor organizations.

The field of agricultural labor provides a fertile source of material to analyze the effects of market structures and bargaining powers on organization. For instance, the Teamsters are in a strategic position with respect to many farm operations, for they carry the produce to market. In any struggle for organization and support this may be decisive. A union of field workers or even of packing shed employees may be subject to the pressures of these strategic Teamsters. In the recent inter-union struggles between the AFL and CIO in California agriculture, this factor has been crucial. The majority of field or packing employees may choose one union, but the employers may be forced by economic factors to deal with another.

The Bulletin prepared by Stuart Jamieson is thus a very useful compilation of material relating to the recent organization of labor in the field of agriculture. While some fields, such as dairying are neglected, the Report will be very useful to students of agriculture and industrial relations alike. This report provides the point of departure for a much needed careful analysis and explanation of union organization in this field.

JOHN T. DUNLOP

*Harvard University*

*Production Credit for Southern Cotton Growers*, A. E. Nielsen. New York: King's Crown Press, 1946. Pp. 194. \$2.50.

The author of this book traces the economic as well as credit history of American cotton production from its beginning to the present with the thesis that the system of cotton production including many of its evil consequences has developed largely in adjustment to the methods by which it has been financed. Data and analysis are so comprehensively, concisely and logically presented that each of the ten chapters will be mentioned in review. All merit the attention of every one who is interested either in cotton production or the people who grow it.

Chapter one describes the geography of the cotton belt and the importance of the crop, at the same time pointing out the low economic status of the rural population in the principal cotton producing states. Chapter two describes the changing economic position of southern cotton as it has been influenced by increasing for-

eign production, price declines, bank suspensions, downward trends in American cotton exports, government price policy including its disadvantageous effects upon southern growers, the increasing use of synthetic fiber and the potentialities of increased mechanization.

The author traces and analyzes in chapter three the development and consequences of credit practices prevailing in the prewar plantation system, the factor system, and the post civil war financing through a tenancy system; then he points out the special regional aspects of the cotton grower's credit needs in recent years. Chapter four reviews the findings of nine earlier studies published as experiment station bulletins—five in the Gulf Southwest and four in the Southeast. The varying importance of commercial bank credit, the declining use of landlord and merchant credit and the increasing use of government sponsored credit agencies are noted. According to a quotation from one study approximately three-fourths of all farm operators in South Carolina were unable to qualify for loans from either banks or production credit associations in 1937.

Chapter five presents past and present influences of commercial banks upon agricultural credit in the cotton belt. Chapter six treats similarly the Federal Intermediate Bank system and chapter seven, Federal emergency credit agencies. The author might have placed more emphasis upon the contribution which emergency crop and feed loans have made to the rehabilitation of small farmers unable to get credit elsewhere. The 1938 report of the Farm Credit Administration shows that among 252,895 farm operators who obtained emergency loans in 1937, 102,353 were still farming in 1938 but did not use emergency credit. Of these 37 percent were able to finance themselves and another 36.8 percent had so increased their credit standing as to be able to borrow from banks or production credit associations. More study is needed of the extent to which emergency crop and feed loans relieve small scale cotton growers of the burden of high cost merchant credit. Chapter eight describes the Federally sponsored Farm Credit Administration agencies and explains why cotton growers who are tenants and share croppers have been unable in general to borrow from production credit associations. The inter-relationships of Federally sponsored agencies and banks as sources of cotton production credit are studied in chapter nine, demand deposits of banks being used as a measuring stick. Lower and more uniform interest rates and greater flexibility

in sources of credit are indicated with relative importance of banks and production credit associations dependent in future upon the rates at which future issues of Federal Intermediate Credit Bank debentures can be sold.

The author concludes in chapter ten that the production credit problem centers upon ability to pay rather than upon more and cheaper credit. Something must be done to break the vicious circle of cash cotton, high cost credit, more tenancy and more cash cotton. Further industrialization in the region and an attack on the problem of tenancy are suggested as remedial measures. The reviewer finds no fault with what has been said and would add only to chapter seven as before noted. Because of its concise completeness, careful citation of sources and its excellent bibliography this book is recommended as a text for seminar courses and as a reference book to all who have an economic interest in cotton production.

W. T. FERRIER

*Clemson College*

## PUBLICATIONS RECEIVED

- Burns, Arthur and Mitchell, Wesley C., *Measuring Business Cycles—Studies in Business Cycles, No. 2: National Bureau of Economic Research*, 1946. Pp. 154. \$2.50.
- Carlson, Valdemar, *An Introduction to Modern Economics: The Blakeston Co.*, 1946. Pp. 337. \$3.50.
- Chase, Stuart, *For This We Fought: Twentieth Century Fund*, 1946. Pp. 123. \$1.00.
- Condorde, Mikhail, *Russian-American Trade: Bureau of Business Research, Ohio State University*, 1946. Pp. 154. \$2.50.
- Conference on Research in Income and Wealth, *Studies in Income and Wealth, Vol. 8: National Bureau of Economic Research*, 1946. Pp. 320. \$3.00.
- Ellis, David Maldwin, *Landlords and Farmers in the Hudson-Mohawk Region: Cornell University Press*, 1946. Pp. 334. \$4.00.
- Farnsworth, Helen, *Wheat Growers and the Tariff: University of California Press*, 1946. Pp. 29. \$.25.
- Felner, William and Haley, Benard F., *Readings in the Theory of Income Distribution: The Blakeston Co.*, 1946. Pp. 718. \$7.25.
- Groves, Harold M., *Postwar Taxation and Economic Progress: McGraw-Hill Co.*, 1946. Pp. 413. \$4.50.
- Hutchison, Claude B. (Editor), *California Agriculture—A Study by Members of the Faculty, University of California: University of California Press*, 1946. Pp. viii, 444. \$5.00.
- Loeb, Harold, *Full Production Without War: Princeton University Press*, 1946. Pp. 277. \$3.50.
- Linstrom, David Edgar, *Rural Life and the Church: The Garrard Press*, 1946. Pp. 205. \$2.50.
- Mendershausen, Horst, *Changes in Income Distribution During The Great Depression: National Bureau of Economic Research*, 1946. Pp. xviii, 192. \$2.50.
- Nielson, A. E., *Production Credit for Southern Cotton Growers: Kings Crown Press*, 1946. Pp. viii, 182. \$2.50.
- Radin, George, *Economic Reconstruction of Yugoslavia: Kings Crown Press*, 1946. Pp. xii, 162. \$2.50.
- Shannon, Fred A., *The Farmers Last Frontier, Agriculture 1860–1897, Vol. V, Economic History of the United States: Farrar and Rinehart, Inc.*, 1946. Pp. xii, 434. \$3.75.
- Shepherd, Geoffrey S., *Marketing Farm Products: Iowa State College Press*, 1946. Pp. x, 445. \$4.25.



## NEWS NOTES

K. L. Bachman, Division of Farm Management and Costs, BAE, is at Harvard University for the academic year.

Merton B. Bedenhap, who recently returned from the armed services, has been appointed Instructor in Agricultural Economics, University of Tennessee.

Horace Belshaw of New Zealand has been appointed Professor of Agricultural Economics at the University of California. Dr. Belshaw will give courses in economics on the Davis campus in the fall semester.

Roland C. Bevan has been appointed Associate Professor and Economist in the Department of Agricultural Economics at the University of Idaho.

Russell W. Bierman, Division of Farm Management and Costs, BAE, is continuing his studies at Harvard University.

C. A. Bratton, recently released from active duty as a Captain in the Field Artillery, has been appointed Assistant Professor in Farm Management at Cornell University. Dr. Bratton is in extension, working on the economic problems of rural youth.

R. J. Briggs, an Instructor in the Department of Agricultural Economics at the University of Missouri, has resigned to accept a position at the Central Missouri State College, Warrensburg, Missouri. Mr. Briggs will be in charge of the Division of Social Sciences.

Walter M. Bristol has accepted the position of Instructor and Associate in the Department of Agricultural Economics at the State College of Washington.

L. M. Brown, Assistant Professor of Agricultural Economics, South Dakota State College, has resigned to accept a position as Executive Secretary, Nebraska Council for Cooperatives, Lincoln, Nebraska.

Warren W. Burger has been appointed Assistant Professor in Farm Management at Cornell to do labor utilization extension work. Professor Burger was a county extension agent prior to serving as an Ensign in the Navy.

James P. Cavin, formerly Associate Head of the Division of Statistical and Historical Research, BAE, is now Head of that Division.

A. H. Chambers has resigned as Assistant Agricultural Economist, University of Tennessee, to accept employment with a Federal agency.

H. K. Chang became a member of the Department of Agricultural Economics and Rural Sociology at Montana State College in September. Dr. Chang will devote the major part of his time to teaching but will also carry on rural sociological research.

W. M. Curtiss, Professor of Marketing, Department of Agricultural Economics at Cornell, left August 1, on leave of absence, to act as executive secretary of the recently organized Foundation for Economic Education at Irving-on-Hudson, New York.

L. B. Darrah, Associate Professor in Agricultural Economics, Cornell University, recently transferred from extension to resident teaching and research in poultry and livestock marketing.

Arthur W. Dewey, of the Bureau of Agricultural Economics is being hired as a joint employee of the Bureau of Agricultural Economics and the Storrs Agricultural Experiment Station to work on tobacco production and marketing studies.

Raymond J. Doll, Assistant Professor of Agricultural Economics at Kansas State College, has been granted leave for graduate study at the University of Minnesota.

Lippert S. Ellis, formerly BAE Regional Analyst at Little Rock, Arkansas, is now Dean of the College of Agriculture and Director of the Agricultural Experiment Station, University of Arkansas.

Everett M. Elwood has been appointed Extension Specialist in Farm Management at Michigan State College to replace Arthur H. Haist who resigned to enter the employ of the H. H. Halderman Farm Management Service Company.

Irving F. Fellows, formerly of the New England Regional Office, Bureau of Agricultural Economics, has been assigned to work on a cooperative project at the University of Connecticut.

Rudolph Freund, formerly of the University of Virginia, has accepted a position at North Carolina State College. He will devote his time to teaching General and Agricultural Economics.

H. Prentiss Gazaway, has been appointed Instructor in the Department of Agricultural Economics, Oklahoma Agricultural and Mechanical College.

T. N. Gearreald, formerly on the staff in Agricultural Economics at V.P.I., Blackburg, Virginia, has accepted a position with The Southern States Cooperative with headquarters in Richmond, Virginia. Dr. Gearreald served as a Lieutenant-Colonel in the Quartermaster General's Department during the war.

Reid M. Grigsby transferred from research and teaching in the Department of Agricultural Economics to the Marketing Section in the Agricultural Extension Division at the Louisiana State University.

C. H. Hammar, who resumed his duties at the University of Missouri in February after discharge from the armed services, has again been granted leave of absence to resume his work in Germany on a civilian

status. He is on leave for a year beginning September 1 and his family will join him in Frankfort, Germany, sometime this winter.

Robert B. Halpin has been appointed poultry marketing specialist in the Division of Farm and Ranch Economics at Texas State College. Mr. Halpin resigned as Instructor and Research Assistant for the University of New Hampshire Department of Poultry Husbandry in September 1941 to enter the Quartermaster Corps of the Army.

A. H. Harrington resigned his position as Associate Agricultural Economist at Alabama Polytechnic Institute to accept a similar position with Washington State College.

F. A. Harper, Professor of Marketing, Department of Agricultural Economics, Cornell University, is on leave of absence from the University to do research for The Foundation for Economic Education at Irving-on-Hudson, New York.

G. W. Hedlund resigned as head of the Department of Agricultural Economics at Pennsylvania State College to accept a position as Professor of Business Management at Cornell University. His work will be primarily with cooperatives.

Richard B. Heflebower, formerly of the State College of Washington and recently with OPA, joined the staff of the Brookings Institution on September 15 to work on problems in the field of price analysis.

Carl P. Heisig, Agricultural Economist in the Division of Farm Management and Costs, BAE, has been made Head of the Division.

Leonard Hill, BAE Land Economist at Berkeley, California, has transferred to the Bureau of Reclamation at Billings, Montana.

Leon Hill, BAE Land Economist at Little Rock, Arkansas, has transferred to the Bureau of Reclamation at Amarillo, Texas.

T. N. Hurd is directing the research and extension work on the problems of farm labor in the Department of Agricultural Economics at Cornell University. His work is closely associated with that of the School of Industrial and Labor Relations. During the war, Dr. Hurd was Farm Man Power Director for New York State.

W. E. A. Husmann, formerly Assistant Professor of Agronomy at Virginia Polytechnic Institute has accepted a position as Associate Professor of Agricultural Economics at Clemson College. Mr. Husmann holds a doctor's degree in Agricultural Economics from the University of Berlin and during the 1930's was an international representative of the fertilizer division of the I. G. Farben.

Clarence A. Hustrulid, formerly a Captain in the Armed Forces, has accepted a position as Farm Management Fieldman at South Dakota State College.

William O. Jones has joined the staff of the Food Research Institute, Stanford University, as Assistant Economist. He was formerly Instructor in Economics at Stanford. In his new position, Mr. Jones will be doing research in the field of per capita flour consumption in the United States.

Alexander Joss, BAE Land Economist at Berkeley, California, has transferred to the Farm Credit Administration at Spokane, where he is now Director of Research.

Paul L. Kelley and Harvey Kopper have been appointed Instructors in Agricultural Economics at Kansas State College.

Edmund J. Lehrun, formerly at Rhode Island, has been appointed Assistant Agricultural Economist, University of Tennessee.

Rensis Likert, Head of the Division of Special Surveys, BAE, left the Bureau on October 1 to become director of the Survey Research Center, University of Michigan. Ray C. Smith, Assistant Chief in charge of Farm Population, will be acting Head of the Division.

Edward A. Lutz, has been appointed Associate Professor of Public Administration in the Department of Agricultural Economics at Cornell University. Dr. Lutz was Director of the Bureau of Business Research in the State Department of Commerce in Albany prior to his service in the Navy as a Lieutenant-Commander.

Lawrence B. Lyall and Ralph E. Ward of the Bureau of Agricultural Economics have transferred their permanent offices from Lincoln, Nebraska, to the Department of Agricultural Economics and Rural Sociology at Montana State College.

Alan G. MacLeod, Executive Secretary of the New England Research Council on Marketing and Food Supply has moved his office from Storrs, Connecticut to Room 1625, P.O. Building, Boston, Massachusetts.

J. N. Mahan resigned his position as Associate Agricultural Economist at Alabama Polytechnic Institute to accept a position as Economist with Tennessee Valley Authority, giving special attention to cooperatives.

Charles E. Mantte, Assistant Agricultural Economist, University of Tennessee, has resigned, effective October 1.

Orlo H. Maughan has accepted a position as Professor and Head of the Department of Agricultural Economics at the State College of Washington. Dr. Maughan was Director of Research for the Farm Credit Administration of Spokane from 1935 to June 1946.

Robert E. Marx, Division of Farm Management and Costs, BAE, is at Kansas State College, for the academic year.

Paul S. McComas, Division of Farm Management and Costs, BAE, after a year of teaching at the University of Alaska, is now at Harvard University to complete his graduate studies.

Orville McCracken returned to the Division of Land Economics, BAE, from Naval Service, and subsequently transferred to the National Housing Administration at Dallas, Texas.

Henry J. Meenen has been appointed Instructor in Agricultural Economics at the University of Missouri. He will handle the beginning course in agricultural economics and be assisted in this work by Dr. Erwin T. Hadorn, who is dividing his time between teaching and research in the Department of Agricultural Economics.

Clyde Mitchell has been appointed Assistant Executive Director of Agriculture for Korea. For the past three years he has been associated with the Office of Requirements and Allocations of the Production and Marketing Administration.

Max Myers has returned to South Dakota State College as Assistant Professor of Agricultural Economics. He served as a Lieutenant-Colonel in the Pacific Area during the war.

Edwin G. Nourse, who served as President of the American Farm Economic Association in 1924, has resigned his position as Vice-president of the Brookings Institution to accept an appointment as Chairman of the Council of Economic Advisers set up under the Employment Act of 1946.

Don Paarlberg, completed his doctorate at Cornell in August, and joined the Department of Agricultural Economics at Purdue University as Assistant Professor, September 1. Dr. Paarlberg will do teaching and research in prices and statistics.

Merton S. Parsons, Division of Farm Management and Costs, BAE, formerly at Upper Darby, Pennsylvania, is now stationed at Washington, D. C.

Jerome K. Pasto, recently joined the staff of the Cornell University Department of Agricultural Economics, as Assistant Professor. Professor Pasto is doing extension work with farm labor cooperative associations in New York State. Prior to his service as a Lieutenant in the Navy, he was with the Soil Conservation Service.

David G. Paterson is Assistant Professor in Marketing, Agricultural Economics Department, South Dakota State College.

E. Louise Pepper, recently with the Food and Agriculture Division of the Control Council for Germany (U.S.) as a member of the WAC, has joined the staff of the Food Research Institute, Stanford University, as Acting Associate Economist. She will be engaged in research on agricultural developments in the Latin American countries during World War II.

M. J. Peterson, Agricultural Economist with the Bureau of Agricultural Economics, who has been stationed at Clemson College for the past three years, has resigned from the Bureau of Agricultural Economics to accept a teaching position at the University of Minnesota.

W. H. Peterson, formerly with the Bureau of Agricultural Economics in Washington, has accepted the position of Associate Professor of Prices and Statistics in the Department of Agricultural Economics and Rural Sociology at Clemson College.

Paul R. Poffenberger who was a Lieutenant in the Navy during the war has assumed his duties as Associate Professor of Agricultural Economics at the University of Maryland.

Whiton Powell, formerly Professor of Business Management in the Department of Agricultural Economics at Cornell, has assumed the duties of Associate Librarian in the New York State College of Agriculture.

Wiston E. Pullen accepted a teaching position at the University of Maine, effective September 1, 1946. Mr. Pullen had been continuing his graduate work at Cornell since his release as a Lieutenant in the Navy last January.

John R. Raeburne is now with the Agricultural Economics Research Institute, Prices and Marketing Section, Parks Road, Oxford, England. Dr. Raeburne was with the Ministry of Food during the war.

Mark M. Regan has been named Assistant Head, Division of Land Economics, BAE, and his former position as Head of the Land Values Section has been filled by J. A. Baker.

Aaron K. Schmidt, formerly a graduate student in Agricultural Economics at the University of Tennessee, and more recently on the staff of the Porto Rico Agricultural Experiment Station, has resigned and returned to the United States.

L. T. Smythe has resumed his position as Assistant Professor in the Agricultural Economics Department at South Dakota State College.

I. A. Spaulding, Associate Rural Sociologist at Clemson College, has resigned to accept a teaching position in sociology at the Woman's College of Rutgers University.

Harry Steele, formerly Regional Leader for the Division of Land Economics at Lincoln, Nebraska, has been assigned to the Office of the Secretary of Agriculture in connection with the Missouri Valley Development work.

Emil S. Troelston, who during the war was employed as Associate Professor of Agricultural Economics at the University of Maryland, has accepted a position with the Bureau of Economic Research in the College of Business and Public Administration of the University of Maryland.

E. A. Tucker, formerly with the Division of Farm Management and Costs, has joined the staff of the Department of Agricultural Economics, Oklahoma Agricultural and Mechanical College as Assistant Professor of Agricultural Economics.



Norman R. Urquhart, Division of Farm Management and Costs, BAE, formerly at Upper Darby, Pennsylvania, is now stationed at Washington, D. C.

V. N. Valgren, Principal Agricultural Economist, in charge of the agricultural insurance work in the Division of Agricultural Finance, Bureau of Agricultural Economics, retired on June 30, 1946, after having served about 29 years with the U. S. Department of Agriculture. Few men were so intimately connected with the growth and prosperity of farmers' mutual fire insurance in this country.

Born in Sweden in 1876, he came to this country at the age of 6 years. He received his degree of Doctor of Philosophy in economics from the University of Chicago. Employed as an "Investigator in Agricultural Insurance" in the old Office of Markets and Rural Organization, in 1915, he later served in the Division of Farm Management and Farm Economics and in the Division of Agricultural Finance. Part of his time in the latter Division was served as Chief of the Division.

Except for a three-year period from 1923 to 1926, he was continuously associated with the Department of Agriculture or the Farm Credit Administration. In 1923 he left to become Manager of the Crop and Weather Division, Automobile Insurance Co., Hartford, Connecticut. Upon his return to the Department, in 1926, he served in the Division of Agricultural Finance, BAE, until he became connected with the Farm Credit Administration, in 1935. There he continued his work with the farmers' mutual fire insurance companies in the Cooperative Research and Service Division. He returned to the Division of Agricultural Finance in October, 1943, and remained there until his retirement on June 30, 1946.

Herman Walker, Jr., formerly Head of the Land Policy Section, Division of Land Economics, BAE, has transferred to the Division of Commercial Policy, Department of State.

B. A. Wallace, after 25 years of service as Extension Professor of Marketing in the Department of Rural Economics, Ohio State University, retired on July 1, 1946.

Andrew E. Watson, Assistant Agricultural Economist of the Maine Agricultural Experiment Station, has resumed his duties after nearly three years as Lt. (j.g.) in the Navy. Mr. Watson is working on poultry and apple marketing studies for the Station.

E. C. Weitzell, formerly Regional Leader for the Division of Land Economics in the Appalachian Region, has returned from Naval Service to resume his work with the Bureau of Agricultural Economics.

Richard G. Wheeler, former Tobacco Research Economist, at the University of Connecticut is now at Harvard University. Mr. Wheeler is working part time on a Dairy Management project.

R. C. Whitney has left the University of Missouri where he was on

temporary assignment during Dr. Hammar's absence and has joined the staff of the Department of Economics, University of Nebraska.

Clifford H. Zuroske, Assistant Economist in the Department of Agricultural Economics at the State College of Washington, has been granted a leave of absence for the year beginning October 1 to continue graduate study toward his doctor's degree at Purdue University.

The Farm Foundation Fellowships at the University of Chicago for 1946-47 have been awarded to Erven J. Long, Department of Agricultural Economics, University of Wisconsin; Wallace E. Ogg, Department of Economics and Sociology, Iowa State College; Everett E. Peterson, Bureau of Agricultural Economics, Washington, D. C.

#### REPORT OF THE ELECTION TELLERS INTERNATIONAL CONFERENCE OF AGRICULTURAL ECONOMISTS

As a result of the recent ballot, Mr. F. F. Hill was elected as a member of Council for the United States of the International Conference of Agricultural Economists. One hundred fifteen ballots were mailed to members and eighty-three were returned.

The four members of the Council for the United States are:

H. C. M. Case  
F. F. Hill  
Asher Hobson  
E. C. Young

The above members will hold office through the next meeting of the International Conference of Agricultural Economists.

E. C. YOUNG  
ASHER HOBSON  
*Election Tellers*

PROGRAM OF ANNUAL MEETING—AMERICAN  
FARM ECONOMIC ASSOCIATION

BENJAMIN FRANKLIN HOTEL, PHILADELPHIA, PA.

DECEMBER 27 AND 28, 1946

*December 27*

10:00 A.M.

1. *Agricultural Cooperation*

The theory of cooperation

Frank Robotka, Iowa State College

The future of farm cooperatives in the United States

E. A. Perregaux, University of Connecticut

Chairman, William I. Myers, Cornell University

Reviewer, Raymond W. Miller, American Institute of Cooperation

2. *Farm Credit and Land Values*

The land boom

R. I. Nowell, Equitable Life Assurance Society

Federal credit agencies as an influence upon land values

I. W. Duggan, Farm Credit Administration

Chairman, F. F. Hill, Cornell University

Reviewer, Norman J. Wall, Bureau of Agricultural Economics

2:00 P.M.

*International trade and food policies*

This is to be a forum to discuss a paper by Theodore W. Schultz,  
University of Chicago.

Chairman, H. R. Tolley, Food and Agricultural Organization

Those especially invited to participate include:

Horace L. Belshaw, Davis, California

Helen C. Farnsworth, Food Research Institute

Lloyd Metzler, Federal Reserve Board

Winfield W. Riefler, Institute for Advanced Study, Princeton

Robert B. Schwenger, Office of Foreign Agricultural Relations

P. Lamartine Yates, Food and Agriculture Organization

8:00 P.M.

*Round table meetings*

1. *Teaching and textbooks in agricultural economics*

Leader, Warren Waite, University of Minnesota

2. *Father and son arrangements and family succession on farms*

Leader, Stanley Warren, Cornell University

Contributions by Kenneth Parsons, University of Wisconsin,  
and others.

3. *Research and extension in farm management.*

Leader, Sherman E. Johnson, Bureau of Agricultural Economics

Secretary, Leonard F. Miller, Pennsylvania State College

Contributions include:

- a. The farm and home approach to farm management extension

M. L. Wilson, U. S. Extension Service and

H. M. Dixon, U. S. Extension Service

- b. Research needed for farm and home planning

- (1) In the natural sciences

Charles E. Kellogg, Bureau of Plant Industry

- (2) In economics

G. W. Westcott, Massachusetts State College

Discussor: L. G. Allbaugh, Tennessee Valley Authority

#### *Agricultural statistics*

Leader, Charles F. Sarle, Bureau of Agricultural Economics

Contributions include:

- a. The need for current statistics of greater accuracy and broader scope for agricultural economic research

Raymond G. Bressler, Jr., University of Connecticut

- b. The BAE program for enumerative sampling

W. F. Callander, Bureau of Agricultural Economics

- c. Sampling design for January, 1947 nation-wide enumerative survey and how it can be used by research economists

Earl E. Houseman, Bureau of Agricultural Economics

Discussants: R. L. Gillett, Bureau of Agricultural Economics

Morris Hansen, Bureau of the Census

Ray Jessen, Iowa State College

#### 5. *Dairy marketing research*

Leader, R. K. Froker, University of Wisconsin

A seminary of research affecting the market demand for dairy products and an evaluation of alternative public and industry policies for maintaining and expanding market outlets

Alan MacLeod, Bureau of Agricultural Economics

Discussion leaders: Wesley Bronson, Whiting Milk Company

H. A. Luke, Cornell University

#### 6. *Advantages and disadvantages of direct payments to farmers as a substitute for market price supports*

Leader, D. Gale Johnson, University of Chicago

Contributions from:

R. J. Eggert, American Meat Institute

L. H. Simerl, Illinois Agricultural Association

O. H. Brownlee, Iowa State College

#### 7. *Marketing research under the Research and Marketing Act of 1946*

Leader, Leland Spencer, Cornell University

Among those specially invited to participate are:

H. E. Babcock, Sunny Gables Farm, Ithaca, N. Y.

A. C. Hoffman, Kraft Cheese Company  
E. A. Meyer, Production and Marketing Administration  
E. A. Perregaux, University of Connecticut  
Paul Webbink, Social Science Research Council  
H. R. Wellman, University of California  
(Also designated by Western Farm Economics Association)

*December 28*

9:00 A.M. *Business Session*

10:30 A.M. *Programs arranged by Association Committees*

1. *Redefinition of parity*

Committee members:

H. R. Wellman, Chairman, University of California  
R. J. Eggert, American Meat Institute  
R. K. Froker, University of Wisconsin  
L. J. Norton, University of Illinois  
O. V. Wells, Bureau of Agricultural Economics

Discussion by O. H. Brownlee, Iowa State College and Don Paarlberg, Purdue University

2. *Economic implications of technological developments in agricultural production and marketing*

Committee members:

W. G. Murray, Chairman, Iowa State College  
Carl P. Heisig, Bureau of Agricultural Economics  
G. W. Forster, North Carolina State College  
H. L. Boyle, Deere and Company  
F. L. Thomsen, Bureau of Agricultural Economics  
C. O. Brannen, University of Arkansas  
A. C. Hoffman, Kraft Cheese Company

3. *A food and nutrition program for the United States*

Committee members:

John D. Black, Chairman, Harvard University  
M. K. Bennett, Food Research Institute  
L. A. Maynard, Cornell University  
Margaret Reid, Bureau of Human Nutrition & Home Economics  
Rainer Schickele, Production and Marketing Administration  
H. M. Southworth, Production and Marketing Administration

4. *An agricultural program for the south*

Committee members:

Joseph Ackerman, Chairman, Farm Foundation  
George H. Aull, Clemson Agricultural College  
L. P. Gabbard, Texas A. and M. College  
B. M. Gile, Louisiana State University  
James Hand, Jr., Rolling Fork, Mississippi

E. L. Langsford, Bureau of Agricultural Economics  
 O. C. Stine, Bureau of Agricultural Economics  
 Frank J. Welch, Mississippi State College

#### 5. *Work simplification*

##### Committee members:

L. S. Hardin, Chairman, Purdue University  
 R. M. Carter, University of Vermont  
 S. A. Engene, University of Minnesota  
 Paul J. Findlen, U. S. Extension Service  
 L. M. Vaughan, U. S. Extension Service

##### Papers:

The application of work simplification techniques to marketing problems

Max E. Brunk, University of Florida

Discussion by Paul Findlen, U. S. Extension Service

Farm work simplification—a joint problem for economists, engineers, and commodity specialists

I. R. Bierly and Paul R. Hoff, Cornell University

Discussion by H. N. Young, Virginia A. and M. College

Evaluation of work simplification research and teaching activities

R. M. Carter, University of Vermont

#### 6. *National Science Foundation legislation*

##### Committee members:

L. J. Norton, Chairman, University of Illinois  
 George H. Aull, Clemson Agricultural College  
 Asher Hobson, University of Wisconsin  
 O. B. Jesness, University of Minnesota  
 H. R. Wellman, University of California

#### 2:00 P.M. *Current legislation affecting farmers*

Agricultural legislation: an appraisal of current trends and problems ahead

O. V. Wells, Bureau of Agricultural Economics

Legislative programs of farm organizations

A. S. Goss, The National Grange

Edward A. O'Neal, American Farm Bureau Federation

James G. Patton, National Farmers' Union

Chairman: Asher Hobson, University of Wisconsin

Reviewer: Noble Clark, Committee on Agricultural Policy of the Association of Land Grant Colleges and Universities

#### 5:00 P.M. *Editorial Council Executive Committee*

#### 7:00 P.M. *Dinner meeting*

The farmer's interest in economic stability

E. G. Nourse, Council of Economic Advisers



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## RURAL SOCIOLOGY

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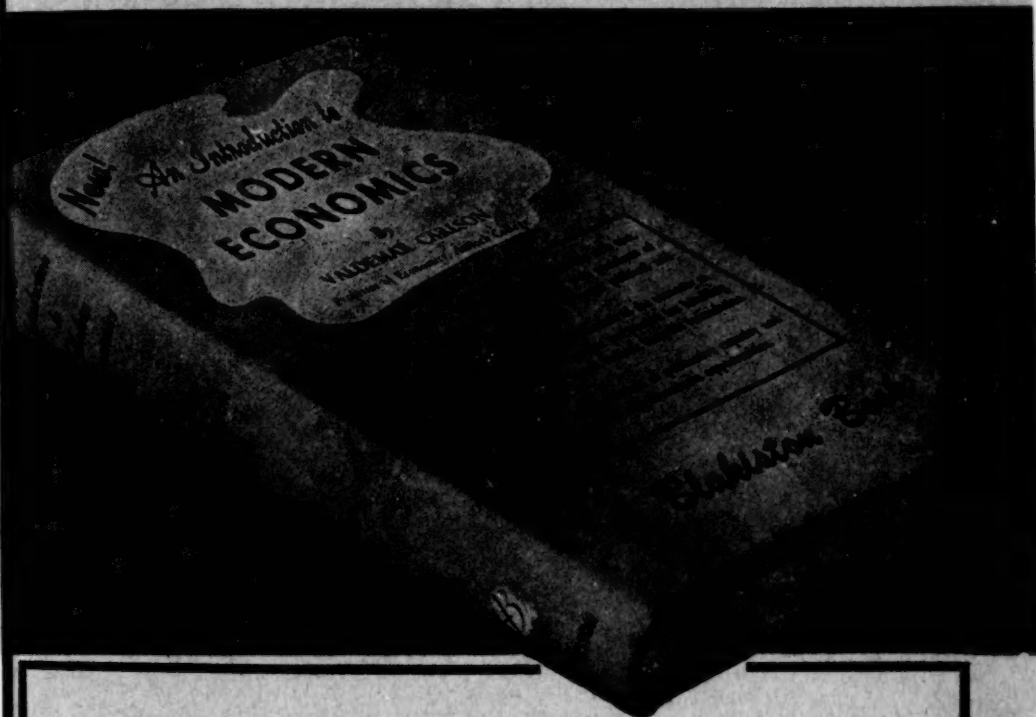


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